

## NATIONAL CLASSIFICATION OF OCCUPATIONS

## DIVISION-8

## PLANT AND MACHINE OPERATORS AND ASSEMBLERS

Plant and machine operators and assemblers operate and monitor industrial and agricultural machinery and equipment on the spot or by remote control, drive and operate trains, motor vehicles and mobile machinery and equipment, or assemble products from component parts according to strict specifications and procedures.

## 81 STATIONERY PLANT AND RELATED OPERATORS

Stationery plant and related operators operate and monitor, on the spot or by remote control, industrial plant for mining or for the processing of metal, minerals, glass, ceramics, wood, paper, chemicals, or water treating, electrical power generating and other purposes, as well as automated and semi automated assembling processes and industrial robots.

## 811 MINING AND MINERAL PROCESSING PLANT OPERATORS

Mining and mineral processing plant operators operate and monitor plant for cutting channels in a mine workforce, for processing mineral ore and stone, or for the drilling and sinking of wells.

## 8111 MINING PLANT OPERATORS

Mining plant operators operate and monitor machinery and equipment, which cut channels in a mine or quarry workforce or drill holes for blasting, or they operate continuous-mining machines.

**8111.10 Miner, Coal Cutting Machine, Coal Cutting Machine Driver; Coal Cutting Machine man** sets and operates electric or pneumatic coal cutting machine for loosening coal working face for blasting by undercut below seam up to specified depth. Moves machine with accessories to working place with assistance of Mining Operatives. Sets it in position to make undercut below seam up to specified depth. Manipulates levers to start motion of endless cutting chain on cutter bar and effect forward movement of machine. Advances cutter bar into working face to cut coal and repeats operation to make other cuts across or down side of working face as desired. Lubricates, adjusts and makes minor repairs to machine as required.

**8111.20 Driller Machine; Machine Runner Driller, Jack Hammer** drills shot – holes of required depth and diameter according to marking in coal minerals, metallic and non metallic rock faces by

electric or petrol engine or compressed air drilling machine as directed according to depth and diameter of hole to be drilled. Operates drill to bore holes of required depth by moving machine backward and forward, if necessary moves machines to other points and repeats operations to make other holes. Replaces blunt or damaged cutting bits, if necessary. May operate jackhammer to drill holes. May sharpen drill-bits.

**8111.30 Wagon Driller; Churn Driller, Deep Hole Driller** operates wagon or churn drill to make deep holes of large diameters in hard or soft rock faces for blasting. Installs and adjusts position of machine. Fits appropriate drill-bit in drilling machine. Operates drilling machine at regulated feed, speed and pressure to drill hole. Stops machine and raises drilling rod out of hole when one bar length is drilled. Adds rod lengths as required and continues operation to drill hole up to required depth. Replaces blunt or damaged drill bits as required. May do minor running repairs to machine. May also sharpen drill bit when required and if possible.

**8111.40 Diamond Driller** drills earth strata at specified site up to prescribed depth to locate or prospect underground minerals using diamond drill. Installs machine at specified site. Sets direction and angle of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

drilling rod against working face. Controls and regulates bit-pressure, rate of feed, speed of drill and flow of water into hole through bit. Adds rod lengths to drilling bits as and when required. Drives metal pipes and casing of pipes through hole at regular intervals to avoid caving. Submits core samples (extracted soil during drilling) for analysis. Keeps correct log (records) of holes drilled and drills used. May lubricate and make minor repairs to machine.

**8111.90 Mining Plant Operators, Other** perform variety of routine and low skilled tasks such as carrying machine and its accessories to work site, fitting and removing drilling rods, holding machine in position, making necessary connections, cooling drill-bits with water etc., and may be designated according to nature of work performed such as DRILLER, HELPER if cleans surface of working face and assists DRILLER, MACHINE to hold drilling machine in position etc. DRILLER MATE if carries machine and its accessories to work site and fits or removes drilling rods etc.

### 8112 MINERAL ORE AND STONE PROCESSING PLANT OPERATORS

Mineral ore and stone processing plant operators operate and monitor machinery and equipment for processing mineral ore and stone.

**8112.10 Crusher Operator, Mineral; Crusher Attendant, Mineral** operates power driven crushing machine to break coal ore or rock into smaller sizes for further processing. Starts crusher by manipulating levers. Adjusts gap between rollers or male and female cones of crushing jaws for desired size of lumps. Regulates flow of minerals from conveyor or chute and adjusts crusher as necessary. Prods larger lumps with bar to force them into crusher and breaks oversized lumps with sledge hammer. Maintains uniform flow of crushed mineral to screens or rolls for further sizing. May clean, lubricate and make minor repairs to crusher.

**8112.15 Pulveriser Operator** operates machines and equipment to crush and blend coal of various compositions to obtain specified mixture used in producing coke:

Turns valve to admit oil to mixer. Starts hammer mill, mixer, and conveyor equipped with harrow disks. Moves lever to adjust blade on feed tables to deliver coal to mixer. Observes operation of machines to detect malfunctioning, clogging, and unevenness of flow. Frees clogged coal by striking side of hopper with mallet. Adjusts or replaces screens and hammers in mill, using handtools. Observes meters, gauges, and thermometer, and records temperature, oil consumption, tonnage mixed, and operating time. Cleans work areas, using broom. May open valves and start pumps to unload oil trucks. May test pulverised coal for conformance to specifications. May crush specific composition of coal (without blending).

**8112.20 Stamp Mill Operator;** operates stamp mill to crush gold ore to obtain gold concentrate. Sets tappets and adjusts stroke of stamp with spanners to obtain optimum crushing of ore in mortar box. Starts and maintains correct feeding of gold ore and water into mortar box for proper crushing. Discharges crushed ore pulp through screens of mortar box onto blankets. Directs flow of water over blankets for washing powdered ore coming from stamp mill. Changes gunny blankets from blanket tables at prescribed intervals and removes collected gold concentrate. Washes blankets in concentrating tank and collects gold from James concentrating table. Lubricates mill and performs minor repairs. Is designated as **STAMP MILL MAN –IN-CHARGE**, if engaged in issuing stores, supervising other workers maintaining supply and pay roll records etc. May operate stamp mill for extraction of silver.

**8112.30 Cyanideman** separates gold flakes out of crushed gold ore by treating ore in bath of cyanide acid. Pumps finely ground gold ore slime from collecting tanks to agitators. Adds specified amount of lime and cyanide acid. Opens valve on compressed air line to agitate slime. Uses simple hydrometer to check specific gravity of solution. Maintains agitation of slime until required specific gravity is attained. Filters off cyanide solution allowing formation of cake residue. Repairs pumps, tanks and related machinery. May issue stores, maintain pay rolls, discipline and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

security of section. May supervise work of other subordinates. May work as Precipitator.

**8112.40 Precipitator** exposes cyanide solution to zinc shavings in order to precipitate and recover gold still remaining in solution. Packs zinc box (extractor box) with zinc shaving. Pumps gold solution from filtration plant into clarifier tanks. Regulates flow of clarified gold solution from clarifier tanks into extractor boxes to precipitate gold by action of zinc. Adds lead acetate to extractors in required quantities to facilitate precipitation. Cleans out extractor boxes to recover precipitated gold. Chemically treats, washes and dries precipitated gold by operating vacuum pumps. etc Treats residue slime with sulphuric acid to recover remaining gold.

**8112.45 Washing Plant Operator, Coal** operates different machines and equipment for sizing, cleaning, washing and preparing coal for sale or further processing. Checks operating condition of plant, machines and equipment, such as conveyor, crusher, agitator, elevator, wash box, blower, pump, feeder screen, core and refuse gate. Sets and adjusts them as necessary to have desired pulsation, correct performance, proper control of air, water and coal, etc. by observing readings on different meters and gauges and by regulating values on control panel. Adjusts flow of raw coal through them to separate slate rock and other impurities. Operates cone to mix sand and water in proper proportions to ensure correct specific gravity and observes operation. Tests sample of processed coal by weighing and simple physical and chemical tests to ensure correct percentage of ash content, and minimum rejection of usable coal. May conduct repairs of machinery. May perform only a portion of above duties and be designated as **RAW COAL SECTION OPERATOR, FEED OPERATOR, CONE OPERATOR, REFUSE, GATE OPERATOR**, etc. according to operation performed or machine handled.

**8112.50 Stone Sawyer Machine ; Stone Sawing Machine Man** saws blocks of stones into slabs of required size by sawing machine. Places or directs placing of blocks of stone on empty carriage or trolley with aid

of helpers, hoist or cranes. Levels and fixes stone in cutting position with wedges, belts, metal plates, clamps and nuts etc. as required. Fixes required number of saw blades in sawing machine as needed, adjusts their distance according to size of slabs to be cut and tightens them with keys. Clutches machine or operates hand screw to lower down saw blades till they touch upper surface of block to be cut and pour or directs pouring of rough dry or wet sand on it. Starts machines and tends it to ensure proper sawing of block. Adjusts sawing by declutching or re clutching when it becomes heavy or light. Stops machine when stone is sawed, shuts off valve to stop flow of water and directs removal of slabs cut from saw carriage or trolley. Changes and adjusts saw blades as necessary.

**8112.55 Stone Cutter, Machine** cuts stone to required size on stone cutting machine. Places stone slab on machine carriage and adjusts its position according to measurements. Tightens slab on carriage by operating pressure handle and switches on machine to revolve carborandum or diamond cutting wheel. Opens water valve to supply water on stone slab to serve as coolant and raises machine carriage by operating lever or handwheel to bring cutting wheel in contact with slab to be cut. Applies cut carefully and continues cutting till stone slab is cut to required dimension. May work on stone polishing and stone sawing machine.

**8112.60 Stone Polisher Machine** operates stone polishing machine to polish surface of blocks or slabs of stone to required finish. Sets rough stone-block or slab on mud or suitable structure below grinding wheel of machine and places stone slab to be polished on it. Sprinkles water and spreads rough and or other abrasive all over its surface. Starts machine, sets machine wheel to revolve and slowly brings it down in contact with stone to be polished. Attends to machine and sprinkles water and abrasive as and when required till stone is polished to required finish. Switches off and stops machine wheel. Removes stone slab and washes rubbed surface with water. May polish stone slabs by fixing iron or carborandum blocks in grinding wheel of machine. May polish stones to high finish using chemicals and felt

## NATIONAL CLASSIFICATION OF OCCUPATIONS

wheels. May work on stone saw and stone cutting machine.

**8112.62 Pipe Machine Man, Stone Ware; Pipe Mill Operator, Stone Ware** operates pipe making machine to make stone ware pipes of required dimensions. Checks and sets appropriate die in machine according to size of pipe to be made. Directs helpers to feed plastic clay into machine hopper and starts machine. Sets machine feed and speed to force clay into bell mechanism and die set in machine and watches automatic formation of required length of pipe at regulated speed. Unlocks machine table by operating lever and stops machine to release and cut extruded pipe by pushing cutting wire of machine through it. Tilts socket to facilitate removal of finished pipe for further processing. Oils socket and outlet die to prevent sticking of clay to them. May test texture of clay visually and suggest changes for moistening. May do minor running repairs to machine.

**8112.65 Thread Cutting Machine Operator, Stoneware** operates thread cutting machine to cut external or internal thread screws on stone ware pipes. Fits appropriate thread cutting die in machines. Lifts and sets pipe in wet condition to spindle or roller of machine with aid of helper, hoist or crane. Starts machine and cuts grooves or threads at one end or both ends of pipe as required by pressing thread cutting die on it. Cuts pipe to required length by operating pipe cutting attachment fitted to machine. Ensures correct finish of threads cut and removes pipe from machine. Oils and lubricates machine. May cut threads on pipe manually using metal template. May operate pipe machine to make pipes.

**8112.70 Cone Operator (Mine & Quarry)** tends cone (gravity device) to separate slate and rock from coal: Presses buttons to start conveyor and regulate flow of material into top of cone. Turns valve to regulate flow of water into bottom of cone and maintain specified pressure to carry coal off with overflow while rock and slate fall to bottom. Pulls lever to open slate gate at bottom and draw off impurities.

**8112.90 Mineral Ore and Stone Processing Plant Operators, Other** include all those who operate and monitor machinery and equipment for processing mineral ore and stone not elsewhere classified.

### 8113 WELL DRILLERS AND BORERS AND RELATED WORKERS

Well drillers and borers and related workers erect and operate drilling machinery and equipment and perform related tasks in the sinking and operation of well.

**8113.10 Well Driller, Petroleum and Gas** operates rotary type of drilling plant for sinking petroleum and gas wells. Manipulates levers and throttles to control speed of tools set in rotary table and to regulate pressure of tools at bottom of borehole as indicated by gauge. Connects and disconnects sections of drill pipe as they run into or out of well. Selects drill bits according to nature of strata encountered and changes them when blunt or when strata change. Uses special tools to retrieve broken or lost equipment from borehole. Inspects cores or cuttings while drilling to determine nature of strata being encountered. Manipulates levers, pedals and brakes to control machinery which supplies power for lowering or raising drill pipe and casing. Checks operation of slush pumps to ensure that fluid which cools bit, removes cuttings and seals wall of hole with clay is circulating properly and is of proper consistency. Controls flow from well by capping it or by regulating valves. Supervises work of assistants and maintains prescribed records. May set up plant.

**8113.15 Derrickman; Rigman Petroleum and Gas** erects drilling rigs, fits cables through pulleys and blocks and assists Well driller in lifting and laying down tubing and removing drilling pipes. Sets crown blocks (pulley support connecting derrick posts at top) in position with hoisting beams. Strings up cables through to lift or lower drill pipes. Cleans splashed oil from derrick floor. Assists drilling crew in installing oil gas separator and gas line and in dismantling equipment on completion of work or as required. Cleans oil and maintains pulleys block etc. May operate tongs, slips and spinning rope at drilling stage. May be

## NATIONAL CLASSIFICATION OF OCCUPATIONS

designated as Top man if works on monkey board on rig at height of about 100 ft .from ground level .

**8113.20 Mudman** prepares drilling mud fluid to plastic mixture of compounded clay, chemicals and water of required consistency by mixing clay and chemicals in required proportions and controls mud circulation pumps for flushing out drill cutting and cooling drill bites. Mixes clay, chemicals and water in required proportions as instructed by MUD SUPERVISOR to soften earth formation during drilling operations. Checks weight and viscosity of mud at short intervals and controls mud circulation pumps for flushing out drill cuttings and cooling drill bits. Maintains record of mud transactions and stock of chemicals used. Collects flush and operates vibrating screen to remove silts and well cuttings. May clean channels and tanks. May work on wells other than petroleum and gas.

**8113.25 Cementer** conducts mixing of cement in proper consistency and cementing annular spaces between casings and sidewalls of well. Rigs up high pressure lines, makes arrangements for cementing and connects hopper section tank and other pipelines. Obtains information regarding condition of strata to be cemented from Well Driller to determine quality and quantity of cement to be used. Mixes cement, limestone, clay, water and other chemicals to form slurry. Pumps slurry under pressure to seal space between steel casing and side wall and decides time required for setting of cement. Keeps record of cement used. Studies graphical reports and informs well conditions to proper authorities.

**8113.30 Well Puller** removes, repairs and replaces rods, casings and tubings of producing wells, cleans and services them with special tools and controls flow of oil or gas according to pressure charts. Carries required tools, travelling block and block line, etc. to work site. Attaches cable to top of pump rod or casing and operates winch mounted on tractor to pull them out for cleaning, repairs or replacements as required. Disconnects each section of pump rod and casing for cleaning, straightening and repairing according to nature of defects noticed. Runs packer (plug device) into well

to control flow of oil, water or gas during well pulling operations. Lowers swabber into well to clear mud from screens at bottom of well and to establish flow of oil. Records well pressure by lowering pressure-recording devices into it and interprets pressure charts. Keeps well Puller Supervisor informed of defects and repairs done in pump and casing. May measure and record tubing length. May recover tubing and rods from abandoned well and plug it with cement.

**8113.35 Scaperman** scrapes off and pulls out wax from inside tubing by operating power driven scraper. Fixes scraping tools to scraper with assistance of Rigman and places tractor or winch by side of well. Operates scraper by tractor or winch to scrap off wax from inside tubing. Pulls out scrapped wax from inside of drill pipes to keep well open for production. May attend to normal maintenance of equipment.

**8113.40 Gauger** controls flow lines in oil head tanks, dries off accumulated moisture by operating steam heating valves and delivers oil to oil pumps. Takes dip readings of various tanks before and after bleeding of water and records them. Operates steam heating valves of tanks to dry off accumulated moisture and intimates dip readings to Gas Supervisor either on phone or through messengers. Opens delivery valve of well head tank to deliver oil to pump house, maintains record of oil dispatched from each well on dispatch tickets and sends them to Production Clerk. Ensures that tank does not overflow. Reports tank and pipe condition to proper authorities.

**8113.45 Well Driller, Machine (Other than Petroleum and Gas)** sinks, bores and develops well at selected site by operating power driven drilling machine. Collects sample of soil from selected site of boring for analysis. Selects suitable drilling bit (diamond for hard stone and steel for soft rock and hard earth) according to strata of earth to be bored. Hoists tabular casing over selected site. Starts machine and drills earth strata to drive casing into it. Sinks additional casing when required into well. Sends soil and rock samples for analysis while boring. Removes unnecessary pipes

## NATIONAL CLASSIFICATION OF OCCUPATIONS

from bored well. May insert water jet along side of drill head to soften earth and make drilling easier. Removes sludge or debris from bore hole by operating pump or other equipment.

**8113.50 Well Driller, Hand** sinks tubes to draw water by using manually operated weight to drive pipes deep in earth. Examines soil of selected drilling site to determine appropriate drilling bits. Gets small hole dug at drilling site. Positions drilling bit with pipe into hole. Drives pipes gradually into earth's strata by striking with sliding manually operated weight. Operates pumps or other equipment to remove sludge or debris from bore hole. Inserts steel tubes in drilled hole by screwing one section to another as depth of hole increases. May do water jet drilling. May sink tubes in water wells to slow percolation of water to lower strata.

**8113.90 Well Drillers and Borers and Related Workers, Other** include workers who erect and operate drilling machinery and equipment and perform related tasks in the sinking and operation of well not elsewhere classified.

### **8118 SUPERVISORS AND FOREMEN, MINING AND MINERAL PROCESSING PLANT OPERATION ACTIVITIES**

Supervisors and foremen, mining and mineral processing plant operation activities supervise and guide workers engaged in various mining, quarrying, well drilling, mineral treating and related activities; assist them as necessary and ensure observance of precautionary measures and correct working.

**8118.10 Supervisor and Foreman, Mining and Quarrying** supervises and guides workers engaged in various mining and quarrying operations and ensures compliance with safety and mining rules and regulations. Collects information of workers present on duty in his section and allots duties to different Sirdars or head workmen according to nature of tasks to be performed. Ensures application of prescribed safety measures and compliance with mining rules and regulations in his section. Visits different portions of his section, guides workers as

necessary and collects necessary information. Keeps in touch with surface, if working underground, arranges proper loading and unloading, dewatering and other mining operations. Maintains prescribed records, submits returns and ensures proper discipline, within his section. Co-ordinates functions with other sections and takes emergency measures as and when required. May be designated according to section or work supervised. (Excluded are other mining and quarrying supervisory staff, described separately).

**8118.15 Supervisor and Foreman, Well Drilling** supervises and guides workers engaged in well drilling, well pulling, cementing and like operations and keeps liaison between workers and senior staff. Guides workers in setting drilling rigs, selecting cutters to suit earth's strata, getting drillings tested, fitting pipes and tubes, cementing, etc., according to section in which posted and duties assigned. Decides plan of work, arranges for tools, equipment and accessories required and ensures proper working. Informs working difficulties to senior staff and assists in getting them removed. Maintains necessary records and registers and submits prescribed returns. May assist workers and senior staff in their work. May be designated according to nature of work or section supervised. (Excluded are other well drilling supervisory staff, described separately).

**8118.20 Supervisor and Foreman, Mineral Treating** supervises and guides workers engaged in mineral treating operations according to directions and test results received from laboratory. Guides workers in setting up crushing, sieving, straining, washing, precipitating and other machines and equipment according to section in which posted and duties assigned and ensures proper working. Gets samples tested as prescribed and directs alterations as per test results, if necessary. Arranges for stores and equipment and keeps plants in working order. Maintains production and other records and registers and submits returns as prescribed. May test samples himself, demonstrate operations and train workers. May be designated according to mineral treated or work supervised. (Excluded are chemists, laboratory workers and other

## NATIONAL CLASSIFICATION OF OCCUPATIONS

supervisory staff in mineral treating described separately).

**8118.25 Overman, Colliery; Mine Foreman** guides and supervises extraction of coal, mineral, timbering, etc. in his section of mine and ensures compliance of safety measures. Supervises setting of supports for securing roof and walls of work face. Ensures that air crossing, door, brattice and other ventilation devices are maintained in good order. Inspects track and tram-lines to see that they are properly laid, graded ballasted or otherwise packed. Ensures that man-holes and haulage roadways are kept safe and clear of obstruction. Detects unsafe appliances such as runaway switches, stop-blocks, ropes, chains, brakes, jig-wheels and gets them replaced. Ensures that supply of timber, brattice and other essential materials are stored at convenient places. Attends to danger reports and employs safety measures promptly. Gets dangerous places adequately fenced-off and gets defects removed. Maintains prescribed records and submits reports to superiors on safety measures and output of work. May do gas testing and supervise rescue operations if necessary. May be designated as RESCUE OVERMAN if qualified and perform rescue operations.

**8118.30 Sirdar, Colliery** assists Overman, Colliery in his work and conducts drilling, blasting, timbering, etc. Indents and collects material and other equipment near work-site. Directs and guides drilling and blasting operations ensuring observance of safety precautions. Examines edges of space left by extraction of coal seam and directs erection of supports according to timbering rules. Attends to dangerous operations giving directions in safety measures. Maintains records of output in his section and submits reports to superiors. May deputise for Overman, Colliery in his absence. May render first-aid and conduct rescue operations, if necessary.

**8118.35 Mud Supervisor** supervises preparation of mud (fluid-to-plastic mixture of compounded clay, chemicals and water) of required consistency at well or mud plant for drilling operations. Adds chemicals to mud or gets them mixed by Mud man in required proportions. Gets mud tested by analyst for consistency and removes defects,

if any. Maintains record of all mud transactions, stock and chemicals used. Operates vibrating screen and directs closing and opening of line and tank valves as required. Instructs Drilling Crew to keep channels and tanks clean from sediments, well cuttings, sand, silt etc.

**8118.40 Well Pulling Supervisor** studies depth and fluid level in well and controls well pulling, swabbing and scrapping operations. Takes measurement of depth of well and fluid level. Ensures issue of proper equipment and material to Well Drilling Operatives at work site, Guides crew to set up hoisting equipment mounted on tractor for repairs, replacements and removal of broken drilling accessories from well. Gets well cleared of mud and water and broken rods tubing etc. using special tools. Controls flow of oil or gas with plug device according to pressure chart. Reports irregularities to proper authorities. Maintains record of progress made. May swab old wells for removing mud, water and slush. May attend to leakage, breakage and other failures during well commission operations.

**8118.50 Gas Supervisor** operates for correct supply of gas and ensures proper functioning of meters, indicators and automatic gas controllers at well site. Supervisors blending of gas line, prevent leakage and maintains correct pressure of gas in pumps. Reports irregularities and defect to proper authorities and ensure proper functioning of well site meters, indicators and automatic gas controller. May do minor repairing of meters and indicators.

**8118.90 Supervisors and Foremen, Mining and Mineral Processing Plant Operation Well Drilling Activities, Other** include all the supervisors and foremen engaged in mining quarrying, well drilling and related activities in field, plant or workshop, not elsewhere classified.

### 812 METAL PROCESSING PLANT OPERATORS

Metal processing plant operators operate and monitor ore-smelting or metal-extrusion plant.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8121 ORE AND METAL FURNACE OPERATORS**

Ore and metal furnace operators operate and monitor ore-smelting, metal-converting and refining furnaces.

**8121.10 Stove Minder; Stove Tender** tends stove to heat blast to prescribed degree of temperature for admitting it in to blast furnace for proper combustion under direct instructions from Blower. Operates valves to heat air to specified temperature by admitting it in to stove from cold blastmain. Lets hot air into blast furnace through pipes. May also do slag flushing tapping and operate through chequered checkvent with help of pyrometer and gauges.

**8121.15 Bell Operator, Blast Furnace; Control Man, Blast Furnace** operates bell-gear at top of furnace by levers for charging raw materials into furnace. Watches indicator lamp for raw material stock line to assess charging load. Signals to Hoist Operator to draw loaded skip to bell mechanism and to lower empty skip. Operates motor to fill empty skip with coke. Keeps account of furnace charges. May do running repairs to different gadgets of bell operating room. May operate larry-car interlocks, witch for loading skip with raw material, and also operate skip-hoist mechanism and be designated as **CONTROLMAN, BLAST FURNACE**.

**8121.20 Larry Car Driver, Furnace; Scale Car Driver, Furnace** operates and loads larry car (electric car run on track) with raw material (limestone, iron-ore, etc.) as per instructions of Stock House Foreman or Controlman Blast Furnace from respective bunkers and unloads the minto skip for charging into blast furnace. Receives instructions from Stock House Foreman regarding sequence, proportion and rate of charging of different raw material into blast furnace. Drives car to respective bunkers and mechanically loads container (fitted to car) with proper quantities of raw material keeping watch on weighing scale mounted on car. Drives car to unloading platform and unloads contents into skip either by tilting or drop bottom system. Keeps Stock House Foreman and Controlman informed of

charging rate. May also keep bunker and charging rate account himself.

**8121.25 Gas Cleaning Operator** washes and dries blast furnace gas, and stocks clean gas in gas chamber at prescribed pressure for various uses. Starts electric motors and blowers to direct crude blast gas at high speed through pipes first to pre-cooler then to 'theison washer' (high velocity) rotary device for conducting thorough washing of gas with water and lastly to 'moisture-separator'. Operates valve for collecting clean gas in chamber through pipe connected with 'moisture separator'. Maintains records of water volume, amperes, volts, thermo-couple indicator readings in log book. Supervises periodical repairs and ensures proper running of plant. May operate 'electric precipitator' (electric device for further drying of gas) before final entry into gas chamber. May also direct clean blast furnace gas to stove, coke, oven, etc.

**8121.30 Mixerman** receives blast furnace molten metal from crane operated laddles into mixer furnace and transfers same to convertor, at correct temperature, as and when required. Adjusts mouth of mixer furnace by mechanical device and directs Crane Driver operating tilting ladle to pour molten metal into mixer furnace. Adjusts coke oven gas burners to maintain correct temperature of received molten metal. Tilts mixer furnace by electrical device for pouring molten metal into empty laddles for transferring it into 'bessemer (duplex) convertor'. Keeps account of metal received and delivered. May undertake electrical and mechanical running repairs.

**8121.35 Convertor Blower; Blowerman; Steel Blower** operates 'bessemer convertor' for obtaining required carbon content in molten iron for manufacture of steel by blowing. Tilts convertor by electrical device to receive molten metal from laddles (coming from mixer furnace). Blows air and steam into convertor at required pressure by operating electric switches. Brings convertor to vertical position and continues blowing. Judges metal condition from flames and sparks shooting out of convertor. Stops blowing when satisfied that molten metal is blown for further processing into steel. Tilts convertor to pour metal into another ladle for



## NATIONAL CLASSIFICATION OF OCCUPATIONS

next operation. May watch signals from furnace and power house and take necessary action. May also maintain log book for recording serial number of blow, time, bottom number, vessel number blows on bottom etc.

**8121.40 Converterman** transfers molten metal from mixed furnace ladles to Bessemer converter with help of crane for blowing molten metal. Guides Converter Blower and Crane Driver for tilting converter and ladle to required angle for pouring molten metal from ladle in to converter and for transferring blown metal into another ladle. Inspects bottom and tuyeres (air passages) after each blowing. Closes defective tuyeres by steel plate, firebricks and clay, if necessary. Directs all running repairs of converter. May also supervise changing of bottom and shoulder of converter.

**8121.45 Cell Operator Electric Furnace Operator** operates and maintains electrolytic furnace for manufacture of aluminum from alumina (powder from bauxite). Charges alumina into melting through either by releasing trap door of charging hopper or manually by buckets. Watches 'indicating bulb' (light device indicating abnormal chemical action in bath by formation of thicker crust) after requisite current is released into cell by supervisor. Breaks crust with crow bar or hammer and chisel and stirs bath for remelting. Checks volt and ammeters periodically to ensure proper and adequate flow of current in conducting rod, sets distance between "anode, (positive plate) and "cathode" (negative plate, in this case alumina bath) for effecting proper electrolytic action. Ensures adequate supply of alumina in bath and charges bath with various chemicals for conversion of alumina into aluminium. Maintains general cleanliness and supervises work of Tappers, Electric Furnace and Labourers. May operate carbon electrode furnace where carbon is positive and raw material negative, with tilting arrangement for pouring molten metal. May also attend to abnormal functioning of cell when necessary.

**8121.47 Furnace Operator (Nonferrous Metal)** operates furnace to heat aluminum slabs and fabricated forms to specified

temperature for rolling or processing: Sets furnace controls to regulate temperatures and heating time. Starts conveyors and opens furnace doors to admit slabs, plate, sheet, and coil, or signals Overhead Crane Operator to uncover soaking pits and lower ingots into them. Observes pyrometer and adjusts rheostat controls to maintain temperature between specified limits. Measures temperature of product to determine necessity for adjusting furnace temperature or timing cycle, using thermal instruments and charts. Removes material from furnace, using crane, or signals Overhead Crane Operator to transfer it to next station. Records time and production data.

**8121.50 Tapper, Electric Furnace** taps molten metal from electric furnace into crucible or ladle for casting ingots or articles. Scrapes out alumina from crust in bath and makes hole in it by chisel or crowbar. Places crucible (with hole at bottom) in bath. Allows crucible to be filled with molten metal. Transfers it by ladle or bigger container for pouring it into cast iron moulds for making ingots or carrying it to casting yard by crane. May tap molten metal from bath by mechanical devices (tilting or siphon system).

**8121.55 Furnace Operator, Open Hearth; Furnace Operator First Hand, Open Hearth(Steel Manufacture)** operates open hearth furnace for making steel from blown metal (iron). Charges furnace with scrap, blown and molten metal received from convertor and blast furnace, chemicals etc., according to type of steel required. Controls fuel intake and flow of air in furnace to suit furnace condition. Takes care not to damage refractory work of furnace. Gets furnace ready for tapping and directs Furnace Operator Second Hand to open tapping hole of furnace closed for ascertaining suitability of further operation. May spray furnace sides with dolomite for maintaining proper furnace condition.

**8121.60 Furnace Operator, Second Hand, Open Hearth (Steel Manufacturing)** assists Furnace Operator, First Hand taps molten steel from furnace and adds, chemicals, oxides, etc. Keeps oxide and fluxes ready for charging into furnace. Maintains spout for flow of molten steel in proper condition.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Leads gang of Helpers and Khalasis on receipt of instructions from Furnace Operator First Hand to open tapping hole of furnace by compressed air gun, oxygen cylinder with pipes or other devices. Ensures that molten metal flows smoothly into ladle. Adds various chemicals, oxides and fluxes in ladle to obtain correct specification of steel. Closes tapping hole by dolomite, coke mixtures, etc. Repairs, maintains and dresses runner (channel for flow of molten steel) with fire clay bricks, loan, etc. during tapping intervals. May assist Furnace Operator First Hand in changing furnace and in spraying dolomite on furnace banks (sides). May be designated as **FURNACE KEEPER** or **TAPPER**, if employed in blast furnace.

**8121.70 Furnace Operator (Smelting & Refining)** operates furnace to remove moisture, arsenic, or sulfur from ore: Charges top hearth of roaster with ore, regulating rate of charge by means of chute door. Determines speed with which roaster is being charged by weighing sample of charge ore obtained over measured interval of time. Starts rabblers (automatic rakes) that scrape hearth beds continually and move ore from one hearth to next lower one. Regulates draft and temperature of roaster by adjusting dampers and gas pressure. Replaces rabble arms by detaching arm from shaft with bar and removing it with hoist. Replaces defective rabble teeth. Directs workers in removing incrustations from hearth beds. Removes samples of roasted ore for laboratory analysis. May clean arms and rabblers with scrapers and iron bars. May determine oxide content of dried ore by titrating specified amount of flakes and calculating percentage. May replace defective parts and clean equipment, thermal instruments and charts. Removes material from furnace, using crane, or signals **OVERHEAD CRANE OPERATOR (any industry)** to transfer it to next station. Records time and production data.

**8121.90 Ore and Metal Furnace Operators, Other** include workers who operate and monitor ore-smelting, metal-converting and refining furnaces not elsewhere classified.

### 8122 METAL MELTERS, CASTERS AND ROLLING MILL OPERATORS

Metal melters, casters and rolling mill operators operate and monitor rolling mills to roll metal, or furnaces to melt or reheat metal, or machines to cast metal.

**8122.10 Cogger** rolls hot ingots into blooms (thickbars) of prescribed sizes by controlling operations of bloom mill. Judges temperature of ingot for rolling, sends back cold ingots for re-heating and watches light signal for sizes to be rolled. Operates electric motors (mill and screw down) for providing required draft and speed to rolls. Sets cogging rolls and draft clock. Passes ingot through prescribed number of grooves in rolls until it attains required size. Watches indicating lamp and draft clock to avoid overloading of roll pressure and resets roll gaps, if necessary. Directs operations of Manipulator and Operator Mill Table. May determine sizes to be rolled from chart or log book and maintains record of same.

**8122.12 Manipulator** operates pushers and tilting device of bloom mill for pushing positioning and tilting ingot or bloom (thick bars) through different passes (gaps) in rolls as directed by Cogger. Checks electrical devices and gadgets at beginning of shift. Observes light signals to ascertain size to be rolled. Operates electrical or mechanical controls to hold ingot between pushers with required amount of pressure and to push them through passé in roll as directed by Cogger. Positions, tilts and feeds bloom into consecutive passes in rolls. Co-ordinates his movements with that of Cogger. Informs Cogger of trouble in manipulating machine and signals mechanical and electrical departments for repairs by buzz. May assist Cogger in setting rolls.

**8122.14 Mill Table Operator** operates bloom mill tables for bringing forward ingots for rolling and delivery of bloom (thick bar) after rolling. Checks controls of tables. Watches through mirror approach of ingot from soaking (heating) pit and co-ordinates his operations with those of Cogger and Manipulator. Operates from and back tables by electrical and mechanical controls. Maintains regular movement of ingots and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

blooms to avoid congestion and delay. May assist Cogger in setting rolls.

**8122.16 Roller, Merchant Mill; Roller, Billet Mill** sets, rolls, checks, directs and coordinates operations of rolling mill. Checks general condition of mill. Directs and ensures proper supply of billets to re-heating furnace and from furnace to mill for rolling. Sets rolls, checks guides, adjusts controls, stands and functional parts of mill. Rolls trial bar or plate and makes necessary adjustments. Continues rolling and makes adjustments according to defects revealed in samples taken from time to time. Coordinates work of mill crew such as Guide Setter, Tongsman, Labourers, and ensures smooth running of mill. Keeps mill tackles, rolls, men, etc., ready for mill changing (rolling sizes). May also conduct minor running repairs.

**8122.18 Guide Setter, Merchant Mill; Guide Setter, Billet Mill** sets guides, rest bars and other parts of rolling mill for rolling various sizes of bars, plates, etc. of steel or iron as directed by Roller Merchant Mill. Watches parts in running mill and re-sets guides if necessary. Removes struck up bars by hammering, cutting, pulling with tongs, etc. Keeps ready all mill parts as directed by Roller Merchant Mill for mill changing (rolling sizes). May also assist Roller Merchant Mill in setting rolls.

**8122.20 Roller Sheet Mill; Rough Roller; Eight Roller; Finishing Roller; Four Roller** rolls pack (metal plates or sheets) between mechanically or electrically driven rolls for making metal sheets of specific sizes. Sets roll pressure as per direction. Holds hot metal plate or sheet with tongs, pushes them into rolls, controls roll temperature by opening steam and water on them and rolls plate or sheet in between rolls for required number of times with gradually increased pressure by screwing device. Ensures correct rolling both for finish and sizes. May change position with other Rollers, Sheet Mill. May be designated as **COLD ROLLER** if engaged in cold rolling of annealed sheets for tinning, sizing, forming, etc.

**8122.25 Catcher Sheet Mill** assists Roller Sheet mill in rolling. Holds metal plates or

sheets as they come of rolls with help of tongs and swiftly returns same to Roller, Sheet Mill for re-rolling. Repeats process till required thickness and finish is attained. Lubricates roll necks with grease by means of rope brush. May be designated as **ROUGHING CATCHER, FINISHING CATCHER**, etc., depending on stage of work and as **CATCHER HOT ROLLING MILL (NON-FERROUS METAL)** if engaged in girding outgoing non-ferrous rolled slabs or sheets either for further rolling or for sizing and coiling. May sort and stack sheets according to size. May also hold cold rolled sheets.

**8122.28 Operator Hot Rolling Mill (Non - Ferrous Metal)** controls and operates hot mill for sizing down metal slabs to required specifications. Judges temperature of slabs before starting rolling. Switches on screw – down – Motor and adjusts roll gap according to material and thickness of slab with help of gap indicating dial gauge. Switches on pumps for supply of coolant to slabs or sheets under rolls. Watches light signals and operate, lifting and tilting tables by electric switches. Repeats process of narrowing down roll gap until required thickness is obtained. Keeps account of slabs rolled.

**8122.32 Roller, Hot Rolling Mill (Non-Ferrous Metal)** guides and controls ingoing and returning hot slabs or sheets with help of metal pushers (mild steel hammer like tool with long handle). Receives hot slabs one at a time from pre-heating furnace. Sets slab square on conveyor table (metal table with rollers) and signals to Operator Hot rolling Mill. Lubricates slabs with oil by oil – can and mop. Travels along table with slab and pushes it square in to rolls by metal pushers. Checks and stops returning slab or sheet by metal pushers. Repeats process till required size is attained. May reject material if deformed during rolling.

**8122.36 Shearing and Upcoiler Operator (Non-Ferrous Metal)** sizes and coils plates and sheets to required specifications by up-coiling machine. Sets shearing distance and rolls of up coiling machine. Presses paddle to shear one end of plate or sheet. Starts rolls of coiling machine and feed, plate or sheet into collar of rolls by metal rods, tongs etc. Shears tail end of plate or sheet and operates

## NATIONAL CLASSIFICATION OF OCCUPATIONS

lever to eject coil out .May set shearing blade and do running repairs of up-coiling machine. May also maintain machine log and lot (material) tickets.

**8122.38 Flattening Machine and Flying Shear Operator (Non-ferrous Metal)** flattens and shears coiled strips to required dimensions by flattening machine and flying shear. Sets shearing distance, adjusts roll gaps (mechanically), feeds coil strips into roller, checks thickness of flattened strip by micrometer or gauge before flying shear finally cuts strip to required size, maintains record of strips cut. May undertake minor repairs.

**8122.40 Slitting Machine Operator (Non-ferrous Metal)** operates slitting machines to cut edges lengthwise by disk cutters to get correct width. Measures with steel tape or scale and sets distance of cutters fitted on two electrically operated shafts to required width. Starts machine, feeds coiled sheet through guides on to cutters (collected at other end by Labourers). May operate drum-coiling machine by switch for coiling sized sheets. May also maintain machine log and lot (material) tickets.

**8122.42 Operator, Strip Mill (Non-Ferrous Metal); Roller, Strip Mill; Roller, Strip Mill First Hand** re-rolls strips to required thickness, coils them by machine and coordinates various functions of strip mill. Sets roll gap by electrical controls, lubricate rolls and adjust friction clutch to draw strip in to rolls. Directs Roller Second Hand, Strip Mill in his work. Checks thickness of rolled strips from time to time by micrometer or standard wire gauge and makes adjustments if necessary. Maintains records of rolled strip.

**8122.44 Roller, Second Hand, Strip Mill (Non-Ferrous Metal)** feeds coil –strips in to roller by hand, pneumatic or other device, and finally coils finished strips in drum coiler (drum type machine). Feeds coil-strip through guides in to do coiler (Mechanical device on rolled system for decoiling), lowers bridle (Mechanical attachment) by lever for applying tension on coil –strip (by means of compressed air operated rollers) and feeds strip for roughing. Guides strip in between roller during re-rolling operations

and on return of re-rolled strip operates drum coiler for final coiling.

**8122.46 Seamless Pipe and Tube Roller** operates rolls to form seamless pipe and tubes from billets which have been pierced longitudinally. Examines drawings and specifications .Selects and installs rolls which form specified out side diameter of tubing .Selects and screws to a power – driven rod a plug that rotates inside the billet and forces it to expend to the proper inside diameter. runs billet through successive sets of rolls until dimensions of tubing meet specification. Examines and measures tubing for defect and for conformity to specifications .

**8122.48 Furnaceman Reverberate, Pulverized Coal Fired** operates pulverized coal fired reverberatory furnace for melting iron or steel for heavy castings. Arranges for setting of furnace. Controllers blast and temperature by means of valves and blowers. Supervises and controls charging of furnace by watching flame and atmospheric condition in side chamber. Records reading of various meters and changes furnace condition by controlling feeding of pulverized coal and blast. Draws out samples of metals and slag at intervals and gets them analyzed. Refines metal by adding Ferro-alloys to melting metals. Supervises furnace repairs .May do chemical analysis of samples.

**8122.50 Charger, Reverberatory Furnace, Pulverized Coal Fired** cleans and sets furnace for charging and charges raw material (Scrap iron, pig iron and steel scrap) in to furnace for melting. Removes sticking slag, junk, etc, from furnace by hand tools. Seals holes and doors of furnace (tapping hole, slag door, etc, with clay). Repairs molten metal runner for tapping. Keeps material ready for charging on trolley in front of charging door. Opens charging door and pushes the raw materials into furnace on receipt of instructions from Furnace man, Reverberatory. Closes charging door, seals it and hands over fully charged furnace to furnace man Reverberatory .May do minor repairs of furnace and chimney under guidance of furnace man Reverberatory.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8122.52 Melter Reverberatory –Furnace, Pulverized Coal Fired; Fireman, Reverberatory Furnace, Pulverized Coal Fired** prepares furnace, lights fire and controls blast and feeding of pulverized coal into furnace for maintaining required temperature. Sets log in side furnace and ignites them with flaming torch. Starts machine for feeding furnace with pulverized coal. Starts secondary blower after furnace acquires necessary temperature. Adjusts draft of chimney as per instructions of furnace man Reverberatory. Takes out slags through slag door, stirs metal and opens tap hole by metal bar for tapping molten metal. Places slag trap before slag starts flowing into molten metal. Controls blast and feeding of pulverised coal under instructions from Furnace man, Reverberatory .May draw out samples at intervals as required by Furnace man Reverberatory.

**8122.54 Furnace Mistry, Cupola; Cupola-man; Cupola Tenter** melts metals in cupola (furnace) for making metal castings. Sets furnace bed, lays firewood and ignites Charges with bed coke, rakes fully ignited coke with long metal pokers to obtain required coke height. Supervises plugging of tuyere holes, tapping holes, etc., with clay. Supervises alternate charging of raw material, scrap, coke, etc. Blows and regulates blast into furnace. Inspects melting from time to time. Checks slag condition. Ensures proper melting of metal and supervises tapping. Checks metal temperature by sight. May operate dolomite plant for burning limestone and coke. May also do changing over of tuyere holes.

**8122.56 Slug Flusher; Furnace Assistant, Cupola** removes slag, solidified metal and junk coke from furnace by poking through slag holes. Cautions other workers and opens slag hole by metal poker. Pokes and rakes furnace by metal poking bars, adjusts blast and blows off slag, and watches slag condition. Plugs slag hole with clay after blowing off. May extinguish cupola fire. May also charge mechanized furnace.

**8122.58 Charger, Cupola** charges cupola with required quantity of raw materials scrap, coke, etc. to melt metal to specified temperature. Weighs raw material, limestone scrap etc. on charging platform on

scale and charges same alternately with coke into furnace. Keeps metal charged up to level of charging door of furnace. Pokes charges from top with long poking bars and watches downward movement of metal. May put out fire after final tapping. May also do charging by mechanized skips (tubs).

**8122.60 Cupola Tapper** taps molten metal from furnace into ladle. Ensures proper placing of ladle. Pokes and opens tapping hole by metal bars. Watches free flow of molten metal into ladle, and judges temperature of molten metal by sight. Plugs tapping hole carefully with clay by means of bamboo or wooden bar as soon as all molten metal has been drained and before any slag can find its way into ladle.

**8122.62 Furnaceman, Pit Furnace** melts mostly non-ferrous metals for small castings. Ignites pit furnace, sets blower and places crucible with raw material on furnace. Watches flame to judge proper melting of material. May operate gas or oil fired semi-mechanised furnace specially for soft alloy-castings. May also add various chemicals either for standardizing metal or for accelerating melting of metal.

**8122.64 Heat Treating Furnace Operator** heats metals in closed furnace for heat treatment such as tempering, hardening, normalizing, annealing, etc. Places metal charges in furnace trays, box or arranges them in line by crane or other suitable device. Pushes charges inside furnace by hand, winch or other device. Closes furnace door. Switches on current for generating heat inside furnace. Ignites burner and sets blower for flow of fuel and air in case of oil or gas fired furnace. Sets and watches temperature controlling instruments. Heats charges to requisite temperature. Opens furnace gate and extracts charges electrically, mechanically or manually with tongs, hooked bars etc. May do preheating in closed non-conducting cases by stoves, gas or electric furnace and be designated as **PRE-HEATING FURNACE OPERATOR.**

**8122.66 Pourer; Caster; Teemer** pours molten metal into hopper or mould for casting ingots or metal articles. Receive sufficient molten metal in ladle and brings

## NATIONAL CLASSIFICATION OF OCCUPATIONS

ladle close to moulds either manually by team of workers (molten metal carriers) or by guiding Crane Driver according to pouring facility. Cautiously pours molten metal into moulds or hopper, either manually by tilting ladle, or by mechanical tilting device such as gear and handle system or by releasing stopper by means of lever. Ensures that sufficient molten metal has been poured in each mould .May add different materials to molten metal according to specified direction of Moulder Mistry or Furnace foreman –steel manufacture depending upon types of steel, iron or other casting required. May do cooling by water circulation, rimming (for extraction of casting) etc in case of steel ingots.

**8122.68 Laddelman** receives molten metal from furnace into dry ladle. Keeps ladle below tapping hole of furnace in secured position by locking or other devices. Skims slag from molten metal. Ensures that sufficient metal of required temperature has been received in main ladle. Pours molten metal in to smaller ladle by tilting arrangements. May guide Crane Driver or Loco Driver in case of mechanized foundry for placing laddles or wagons in proper position below tapping hole or delivery spout. May sling ladle securely for carrying it to casting bay.

**8122.70 Ladle Cleaner** cleans laddles and keeps them ready for use. Makes holes on top of slag or rubbish deposit in ladle by crane hook and anchors slag or rubbish deposit to ground by means of hook and chain. Attaches crane hook or ladle and signals Crane Driver to operate crane to pull off ladle from slag or rubbish . May clean small ladle with hammer and chisel .May also conduct loading of empty laddles with scrap from wagons under instructions.

**8122.72 Centrifugal Casting Machine Operator** operates centrifugal casting machine to cast tubular metal products such as brake drums ,pipes ,artillery barrels etc. selects required types of mould , grinds off and cleans rough spot from inside , using specially devised grinding attachment and brush, and fills inside pits with refractory material. Sets mould on machine and fastens cover on ends of mould. Mounts pouring box to serve as funnel for pouring molten metal

into mould. Pre heats mould with torch, if necessary. Starts machine rotating at specified speed and sprays insulation on inside surface of rotating mould . Guides crane man in positioning portable furnace, containing melt for pouring and manipulates electric controls to fill furnace and pour melt in to pouring box. Observes and records prescribed instruments readings and allows mould to spin for required time to solidify metal against mould walls. Unfastens mould cover and removes casting using hydraulic ram or other devices as necessary. May operate machine from control board and be designated as **CASTING MACHINE CONTROL BOARD OPERATOR** .May pour molten metal in to mold with ladle.

**8122.74 Die Casting Machine Operator** operates die-casting machine to make zinc, aluminum and alloy castings for gears, carburettor bodies, machinery parts, equipment, etc. Charges furnace with slabs of metal and adds specified quantity of alloy. Transfers molten alloy to heated reservoir of machine with crane or hand ladle. Removes metal fragments from die surfaces and brushes cavities with compound to prevent casting from adhering to die. Regulates valves to heat furnace, circulate water through die and to force hot metal in to die. Move levers to open and close to halves of water-cooled die. Hooks completed casting from die with steel wire and cools it in water.

**8122.76 Casting Machine Operator (Non-Ferrous Metals)** sets up and operates continuous casting machine to produce tubes and rods. Threads graphite die into bottom of crucible, which holds molten metal during casting process. Places water jacket around die and connects water lines. Inserts metal bar (starting tip) through die into crucible where it provides weld with molten metal. Inserts metal extension rod through driving roller and threads it to starting tip. Regulates speed of rollers to draw extension rods, starting tip, and molten metal through die in continuous casting process.

**8122.77 Casting-Operator Helper (Nonferrous Metal)** assists **CASTING MACHINE OPERATOR (Nonferrous Metal)** in casting aluminum alloys into ingots: Places distributing trough between furnace tap hole and mold. Positions baffle

## NATIONAL CLASSIFICATION OF OCCUPATIONS

plates, screens, and control pins in trough, using hand tools. Takes sample of molten metal for subsequent analysis. Skims dross off molten aluminum in holding furnace, using drag rake. Inserts thermocouple into mold and records temperature of ingot. Examines ingot for cracks, using reflectoscope. Stencils identification numbers on ingots. Hooks cable to ingot for removal by **OVERHEAD CRANE OPERATOR**.

**8122.78 Spun Pipe Machine Operator** operates spinning machine to make spun metal pipes. Moves pipe spinning machine under spout of ladle containing molten metal and allows metal to flow into vertical pipe mould; moves machine back to normal position and starts mould spinning rapidly to evenly distribute metal and eliminate gas bubbles. Allows metal to set and removes pipe from mould, using pipe putter. Gets mould filled with required quantity of molten metal.

**8122.80 Core Maker, Machine** makes cores, using machine, for placing in mould to have designed holes in metal castings. Selects die and spiral conveyor screw and fastens them to machine. Mixes sand and binding material and packs mixture into feed box of machine. Starts motor or turns crank by hand to rotate screw and to take mixture from box and press it through die to form core. Cuts off core as required, repairs damaged surfaces and passes it on for baking or drying in oven or heated chambers. May perform some tasks involved in making cores by hand.

**8122.90 Metal Melters, Casters and Rolling Mill Operators, Other** include workers who operate and monitor rolling mills to roll metal, or furnaces to melt or reheat metal, or machines to cast metal not elsewhere classified.

### **8123 METAL HEAT TREATING PLANT OPERATORS**

Metal Heat Treating Plant Operators operate and monitor plant altering the physical properties of metal objects by heating, cooling and chemical treatment.

**8123.10 Annealer, Metal** anneals (softens) metals by heating and cooling, for easy-machining, rolling, bending, etc., and for relieving internal stresses caused by working or by unequal contraction in casting. Starts furnace and heats material in it up to required temperature for specified time depending upon type and size of material. Stops furnace and allows material to cool down inside it. Anneals copper by heating and immediately quenching in water. May do pack annealing by putting material in sealed box and by heating and cooling it in furnace. May cool material in sand, lime or ash if working on open furnace. May be designated as **NORMALISER**, if engaged in normalizing (removing stresses) fatigued metal parts by process of repeated heating and cooling in air.

**8123.20 Hardener Metal** hardens metal articles such as tools, machine parts etc. for tempering and other purposes. Puts them in pre-heating furnace for heating. Controls furnace temperature and heats charges to prescribed temperature depending upon type of steel. Allows charges to remain in furnace for required period according to size, composition and type of steel. Transfers charges to hardening furnace and controls its temperature to prescribed degree according to size, composition and type of steel. Allows charges to remain there for specific time. Switches off furnace, takes out charges by tongs or other suitable device, quenches them in water or oil or cools them by air blast according to type of steel. May harden material by salt bath (molten cyanide, lead, nitrates, etc.) or by single heating and quenching or cooling process.

**8123.30 Temperer, Metal** removes brittleness caused by hardening of material (Tools, machine parts, etc. ) by re-heating and quenching or cooling process. Puts hardened material inside furnace and controls its temperature depending on type of steel. Allows material to be heated for specific time according to purpose of tool. Switches off furnace, withdraws materials and quenches or cools them according to type of steel.

**8123.40 Carboniser Case Hardener** hardens milled steel surface for making specific components retaining its elasticity.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Packs material thoroughly covered with carbonizing compound (charcoal, barium – carbonate, calcium carbonate etc.), in cast iron or steel box. Pushes box in to furnace after sealing it with clay. Switches on furnace and controls its temperature for specific period at required degree. Switches off furnace, removes box from it after it has slowly cooled off and takes out material. May “case harden” mild steel articles by heating them to required temperature, then smearing from them with carbonizing compound, re-heating them to required temperature and finally quenching them in oil or water. May be designated as **BLUER,METAL** if employed in colouring metal parts by heating them with chemicals for specified time in furnace , and finally quenching them in oil ;and **GUN BLUER** if engaged in blueing gun –barrel by heat treatment in low controlled fire .

**8123.90 Metal Heat Treating Plant Operators** perform number of low skilled and routine tasks such as packing material with carbonizing compound, sealing with clay, setting box in side furnace, drawing it out, arranging material for pre heating, dipping, quenching, etc, and may be designated as Temperer Helper, Hardener Helper, Carboniser Helper, salt Bath Attendant, etc.

### **8124 METAL DRAWERS AND EXTRUDERS**

Metal Drawers and Extruders operate and monitor machinery and equipment which draw and extrude metals to make wires, tubes and similar products.

**8124.10 Controlman, Billet; Signal Controlman, Billet** controls pushing of billet (metal bars) one by one from furnace and guides it to pinching rolls (Device to catch billet) for passing it through first pass (mechanical device for reducing thickness). Watches proper heating of billets in furnace by means of thermo-electrical meters and signals (by light or bell ) to Hot Billet Pusher and Furnace Hooker to push billet to pinching roll. Watches rear end of running bar to feed next billet. Draws attention of pre heating furnace operator in case of improper heating of billets .

**8124.15 Lopper , Metal Drawing** passes rod through series of rolls to reduce it in to wire of required specifications. Watches approach of rod , holds it with pair of tongs and directs it through guide into roll. May remove scraps if necessary and also assist in setting height and different passes (steel dies of various sizes) of rolls. May be designated as **REPEATER, ROUGHING LOOPER or HEAD ROUGHER**, according to stage of work.

**8124.20 Loop Controller, Metal Drawing** controls length of loop by means of electrically operated loop-controller. Watches formation of loop. Operates lever of electric loop-controller and adjusts speed of rolls as required. May rectify common defect in loop formation by means of bar.

**8124.30 Coiling and Cooling Bed Operator, Metal Drawing** controls number of Operations for coil formation and its transfer to conveyer by electric switches . Brings rod of cooling bed and of approaching table in level to cut wire by electrical device. Controls coil formation on electrical driven reels and operate shifting pipes by electrical switch. Pushes electric button for transferring coil to conveyer.

**8124.40 Seamless Pipe and Tube Drawer** draws ferrous and non-ferrous tubing of specified internal and external diameter by machine. Places rough tube in position on draw bench. Sets die (tapered plug) in centre of hole in die block. Pushes or pulls end of rough tubes through die block and secures it with tongs to or carriage in motion, pulling tube over plug to travelling chain or moveable carriage. Sets chain or carriage in motion, pulling tube over plug, to determine internal and external diameter. Stops chain or carriage when length is drawn and removes tongs from tube. Repeats operation until specified diameter is obtained. May be designated according to type of tube drawn or metal used.

**8124.50 Extrusion Press Operator; Extruder Operator (Metal)** sets up and operates hydraulic extrusion press to shape seamless tubings and rods of round, flat or irregular cross sections from hot billets. Receives necessary work schedule and examines drawings and other specifications.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

Selects dies, billet container and mandrel, fixes them in press and sets alignment, temperature etc, as required. Checks and adjusts pressure of hydraulic, water and other pumps for necessary operation. Directs removal of hot billet from heating furnace and its dropping in to billet container. Orders positioning of upsetting device above billet container, and lower ram of press to upsetting device for spreading billet until it fits snugly in to container. Moves hand and foot levers to cause ram to descent and press billet through dies and to regulate speed to extrusion for prevention of tears in metal and adherence of metal to container walls. Raises ram to top of stroke and lowers cut off device to shear of residue and free extruded tube or selection from die. Maintains record of pump pressure, number of tubes and sizes formed, kind of metals extruded etc. as prescribed. May operate vertical or horizontal extruding press. May do minor repairs to machine.

**8124.60 Barbed Wire Maker; Barbed Wire Machinist** makes barbed wire from three or more wires by barbed wire making machine. Sets cams, punch, cutter, etc, and adjusts speed feed of machine according to distance of barbs required and type of wire to be made. Starts machine and fits wire through their respective guides. Checks distance and barb formation. Alters setting if necessary. May grind cutter and dies.

**8124.70 Metal Drawers and Extruders, Other** include all other metal drawers and extruders such as those engaged in assisting operation of hydraulic extrusion press, assisting in setting dies for wire drawing, etc., not elsewhere classified.

**8124.90 Metal Drawing Operatives** perform variety of routine and low skilled tasks in making or drawing of wire from billets such as loading of billet into furnace, pushing hot billets to discharge doors, opening furnace discharge door and pushing billets to pinching rolls, lifting and guiding rods into loping channels, cutting samples, oiling, cleaning, etc, and may be designated as Cold Billet Pusher, Hot Billet Pusher, Furnace Hooker, Finishing Hooker, Sample Cutter etc.

### **8128 SUPERVISORS AND FOREMEN IN METAL PROCESSING PLANT OPERATION**

Supervisors and foremen in metal processing plant operation supervise and guide workers engaged in various metal making and refining processes, control operations of respective departments such as blast furnace, stockhouse, steel making, metal drawing and extruding etc., and ensure observance of precautionary measures and correct working procedure.

**8128.10 Supervisor and Foreman, Metal Making, Converting and Refining** supervises and guides workers engaged in various metal making and refining processes and ensures efficient operations. Guides workers in setting up and controlling, furnaces, charging of raw materials according to type of metal to be made, mixing of chemicals and ingredients for making alloys, controlling furnace flue, water circulation, tapping, pouring, casting and other operations for making required type and quality of metal and alloy. Arranges stock of raw materials, tools, equipment and accessories and ensures efficient and stipulated performance. Checks plants and equipment and gets defects removed. Maintains records and registers and submits prescribed returns. May test samples while processing and make necessary adjustments. May be designated according to section or work supervised. (Excluded are other metal making, converting and refining supervisory staff, described separately).

**8128.20 Foreman, Blast Furnace** directs and controls operations of blast furnace for production of pig iron. Directs Stock House Foreman on phone to charge proper proportions of raw material (limestone, iron-ore, coke, manganese etc.) and regulates blast. Checks furnace condition such as blast temperature pressure, furnace space, etc., and controls tapping of molten metal, removing slag (waste matter) and loading of molten iron in ladles. Records all details of furnace in log book. Checks iron and slag samples and issues necessary instructions for rectifying defects if any. May also do slag flushing tapping and operate mud gun for closing tapping hole.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8128.30 Stock House Foreman** directs operations of stock house and controls charging of furnace. Arranges unloading of raw materials into stock house by Bunker Khallasis and thence to respective bunkers. Receives instructions from Blower, or Foreman Blast Furnace and accordingly instructs Lorry Car Driver or Control Man, Blast Furnace for loading skip with raw material. Keeps accounts of furnace charging, raw material etc. May check lime coating of slag laddles.

**8128.40 Supervisor and Foreman, Metal Treating** supervises and guides workers engaged in treating metals by tempering, hardening, electroplating, etc., and ensures desired finish. Arranges for necessary stores, chemicals, tools and equipment etc., and plans work according to tasks assigned and finish desired. Guides workers in heating metals, controlling temperature, setting vats and baths, hardening, tempering, degreasing, making chemical solutions of required strength electroplating and other processes involved in treating metals according to nature of work performed and ensures prescribed finish. Reports operational difficulties to senior staff or respective sections and gets them removed. Ensures compliance with safety measures, and maintenance of tools and equipment. Maintains necessary records and registers and submits reports as required. May control one or more sections according to size of organisation. May be designated according to section or work supervised. (Excluded are Technologists described elsewhere).

**8128.50 Supervisor and Foreman, Metal Drawing and Extruding** supervises and guides workers engaged in metal drawing and extruding operations for making wires, tubes etc, by automatic or semi automatic processes. Guides workers in setting machines, dies guides, mandrel etc. according to nature of production. Supervises operations and directs workers as necessary to ensure efficient performance and prescribed finish. Arranges for tools and equipments and maintains them in working order. Ensures compliance with safety rules and precautionary measures, maintains necessary records and registers and submits returns as

prescribed. May assist workers in setting machines and equipments. May be designated according to section or work supervised.

**8128.90 Supervisors and Foremen, Metal Processing Plant Operation, Other** include all other supervisors and foremen engaged in metal smelting, converting and refining operations in partial or fully mechanised organizations, not elsewhere classified.

### 813 GLASS, CERAMICS AND RELATED PLANT OPERATORS

Glass, ceramics and related plant operators operate and monitor kilns, furnaces and other machinery and equipment used in the manufacture of glass as well as ceramic products.

#### 8131 GLASS AND CERAMICS KILN AND RELATED MACHINE OPERATORS

Glass and ceramics kiln and related machine operators operate and monitor kilns, furnaces and other machinery and equipment used in the manufacture of glass, ceramics, porcelain or bricks.

**8131.10 Blowing Machine Operator (Glass)** operates machine which blows objects such as bottles, jars, glass shells, of bulbs and valves from molten glass. Places parison (intermediate shape in production of glass articles) in mould of machine, closes mould and adjusts flow of lubricant to prevent glass sticking to mould; regulates flow of compressed air and molten glass into shape of mould in machine; removes shaped articles from mould, feeds them into glass grinders to remove superfluous edges. Tests and checks samples of finished articles to ensure standardization of products. May be designated according to kind of glass articles moulded such as **BLOWING MACHINE OPERATOR, GLASS BULBS**, etc.

**8131.15 Machineman, Sheet Glass** sets and operates glass-drawing machine that produces continuous sheets of window and other flat glass. Switches on heating apparatus in machine to raise temperature to level of plastic glass to prevent breakage. Adjusts and sets in position asbestos rollers

## NATIONAL CLASSIFICATION OF OCCUPATIONS

in machine through which plastic glass is to pass; starts machine so that plastic glass flows in from furnace end, passes through a series of asbestos rollers on machine which roll amorphous plastic glass into sheets of required thickness; adjusts and regulates speed and position of rollers to prevent warping and breakage of glass sheets, and to obtain glass sheets of desired thickness. Removes broken and defective portions of rolled sheets. Cleans and oils machine, and carries out running repairs. May operate machine to break glass sheet at appropriate places. May be designated as **BOTTOM MACHINEMAN** or **TOP MACHINEMAN, SHEET GLASS** according to position of duty on machine.

**8131.20 Pressman; Press Operator (Glass)** operates hand press to mould glass into required shape. Sets mould in press according to size and shape of article to be produced. Shears off proper quantity of molten glass from iron rod, held by Gatherer into machine mould. Operates lever to close mould for compressing molten glass into required shape; manipulates lever to withdraw press head, takes out ware and sends it for annealing or further processing.

**8131.22 Pressman; Press Operator; Moulder Machine (Ceramics)** sets and operates press machine to mould ceramic articles from moist clay. Selects and fixes appropriate die or mould in machine; oils surface of lump of kneaded moist clay to prevent its sticking to inside of mould; places clay lump in position on lower plate of mould box; turns handle and pulls lever to operate press which compresses clay mass into shape of mould, such as tile, brick or sagger (fire clay container in which pottery is placed for fixing in kiln or oven); presses pedal to lift form to remove burr adhering particles to meet specification ; cleans and adjusts mould fitted to machine, if necessary. May be designated according to nature of articles moulded such as **SAGGAR MAKER, MACHINE** or **BRICK MOULDER, MACHINE ; DIE PRESSER CERAMICS**.

**8131.23 Extruding Press Operator, Clay** operates extruding press to extrude moist clay in strips for further processing. Feeds moist clay into machine. Moves lever to

regulate speed of warm (part of machine) which forces clay through outlet form (die). Examines texture of clay periodically and it is extruded from machine and, if required, warns other workers to change moisture content of clay before it enters press. May operate ceramics moulding, jigger or jolly machine.

**8131.25 Rollerwoman; Belanwala (Glass)** rotates roller to wind glass wire into coil used for making bangles. Selects iron roller of size of bangles to be made; regulates furnace temperature at required level; fixes roller in furnace in position and draws glass wire over roller; turns handle to rotate at desired speed to wind glass wire into coils over roller; cuts glass when roller is full; removes roller, and takes out coil of glass wire with a hooked rod. May direct heating of furnace to desired temperature.

**8131.28 Pressman (Abrasive); Moulder, Hand (Abrasive wheel)** operates hand press to press abrasive material into required mould for making grinding wheels, sharpening stones, sticks etc. Mixes abrasive powder and adhesive paste according to formula; sets required type of mould to machine; fills prescribed quantity of abrasive mixture into mould; rakes and levels mixture in mould using levelling devices ; operates levers to start machine and press mould by closing top and bottom parts of mould with required pressure for pressing abrasive powder in mould to desired shape and size; releases lever and stops machine. Removes mould from machine and dismantles mould plates to remove moulded abrasive material ; cleans mould and its parts and repeats process.

**8131.30 Tube and Rod Drawer (Glass)** draws glass into tubes and rods using solid iron rod or blowpipe. Collects from Bubble Maker iron rod with molten glass heated to proper temperature at its end. Sticks molten glass on iron post held by Helper, blows and transfers fibres of glass into rod of the Helper who walks with it; blows down tube to maintain air cavity to prepare tube of required thickness ; continues operation until tube or rod is prepared.

**8131.35 Lens Polisher (Optical)** sets and operates machine to polish surfaces of lens blank to high lustre. Selects and fits felt-

## NATIONAL CLASSIFICATION OF OCCUPATIONS

lined polishing mould of required size and curvature on lower spindle of machine; position, block on which lens blanks are mounted against polishing tool ; starts machine and applies rouge or any other polishing compound to disc periodically during polishing process to polish blank to required level of lustre. Stops machine and removes block after specified time to examine blanks for defects. May operate battery of polishing machines. May operate cylindrical polishing machine.

**8131.37 Polisher (Glass Manufacturing; Glass Products)** polishes edges or surfaces of flat glass, using polishing wheels: Pours polishing compound into hopper of automatic feeder or applies compound to polishing wheel with brush. Holds and turns glass edge or engraved or beveled surface against white (cork) polishing wheel for rough polishing. Presses glass edge, or scratched, engraved, or beveled surface against felt polishing wheel for final polishing or to remove scratches. Wipes polished area and examines glass for smoothness.

**8131.40 Modeller, Pottery and Porcelain** models pottery or porcelain ware, according to drawings, patterns, specifications or by creating own designs, for use in preparing moulds. Examines drawings or specifications; mixes plaster-of Paris or clay with water and kneads mixture to required consistency and texture; beats mixture with small flat wooden piece to make it plastic; makes models by carving plaster or clay, by shaping material on a potter's wheel or by other methods. May work from given designs or create his own designs. May specialize in modelling particular type of products such as toys, domestic or sanitary wares.

**8131.50 Furnaceman, Glass; Melter, Glass** operates gas, oil, coal, coke, or electric furnace to melt ingredients such as sand, soda, potash, borax and broken glass for making required type of glass articles. Feeds or directs feeding of premixed ingredients to furnace; heats furnace and maintains temperature at correct level with aid of instrument controls or by sight; checks and ensures that melting process of ingredient in furnace pot is proceeding correctly and to

required consistency; collects sample of molten glass for laboratory analysis; maintains record of batches of mixture melted; cleans melting pot periodically and examines furnace walls for worn spots and leaks. May skim surface of molten glass to remove impurities, using rake. May specialise in operating particular type of furnace such as Melting Pot, Tank Regenerative or Recuperative tanks. May specialise in melting glass for different types of glass material such as ordinary, optical, sheet glass or for flasks.

**8131.60 Learman ; Lehrman; Annealer, (Glass); Annealing Chamber Attendant** tends annealing oven to reheat and slowly cool glass or glass products to remove or prevent internal stress. Arranges or places hot glass products on annealing (tempering and toughening by heating and slowly cooling) oven platform, using long handled tongs or pincers, ensuring maximum use of space and minimum breakage; pushes packed platform inside furnace for annealing; heats furnace and maintains temperature at correct level observing reading on pyrometer and regulating fire in oven as necessary. Removes glass product after specified period of time, and stacks product for gradual cooling; examines samples of glass ware for reflected colour to determine that annealing meets specifications, using Polariscope; counts and moves packs of annealed glass to storage area for further processing i.e., cutting or sand blasting; collects cracked or broken glass products and puts them in separate receptacles. May specialise in operating particular type of furnace or kiln and be designated accordingly.

**8131.65 Annealer(Glass Products)**tends gas or electric kiln to affix paint on glass: Ignites and regulates gas burners to heat kiln to prescribed temperature, or regulates thermostat to control temperature of electric kiln. Spreads plaster of paris on metal trays with trowel, roller, or palette knife to form smooth, level bed for glass. Sets sections of glass on trays and positions trays in kilns, using tongs. Observes glass through peepholes in kilns to detect signs of warping, bubbling, cracking, or blistering. Removes trays after specified period of time, and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

stacks trays for gradual cooling and annealing in leer.

**8131.70 Kilnman, Pottery and Porcelain** operates kiln for baking pottery and porcelain ware to proper hardness or heating glazed or decorated articles to obtain requisite shining and hard surface. Lights or supervises lighting of fires in kiln, regulates feeding of fuel and adjusts draught to maintain proper temperature, observing temperature indicators and decides when baking is completed.

**8131.72 Kiln Loader, Pottery and Porcelain** loads pottery and porcelain ware in kiln for baking and hardening. Places green pottery and porcelain wares in saggars (fire clay boxes) or in kiln furniture (refractory slabs or trays with intervening posts) ensuring that glazed surfaces do not touch each other ; carries saggars into kiln and stacks them around interior in prescribed manner giving support to articles to prevent them from falling and utilising all available space inside kiln leaving enough space between individual piles of saggars for flame to circulate around them for proper and uniform heating or baking of material ; closes and seals kiln doors to prevent escape of heat. May unload baked articles when kiln cools down to required temperature. May feed fuel (coal) and fire kiln.

**8131.75 Kilnman, Brick and Tile ; Kiln Burner ; Baker (Brick and Tile)** controls periodic, field or retort kilns to bake clay products, such as brick, sewer pipe, clay refractories and roofing tile to proper hardness. Checks that articles for baking are sufficiently dried and hardened ; directs Kiln Loaders, Brick and Tile to load articles in kiln by piling them one above other; seals kiln door with bricks and daubs brick with clay to prevent loss of heat, using trowel; opens full valves and lights gas or oil, fires using oil soaked stick or supervises its firing according to firing schedule depending upon articles to be baked. Observes thermometer and action of pyrometric cones through peepholes or removes objects from kiln with tongs and examines it to determine rate of burning; turns gas or oil valves and dampers to adjust rate of burning or baking of objects; closes fuel valves and fire-boxes, opens kiln-crown holes and installs fans to cool objects.

Instructs Kiln Loaders to unload baked articles when kiln cools down to required temperature. May be designated according to type of kiln operated as **DRY-KILN BURNER; FIELD-KILN BURNER; RETORT KILN-MAN** or according to product-burned **BRICKKILN BURNER; ROOFING TILE BURNER**. May operate continuous or intermittent firing kiln.

**8131.77 Kiln Loader, Brick and Tile** loads green bricks, tiles and such other clay products in kiln for baking. Stacks products such as blocks, bricks, and roofing tile, in specified patterns in periodic kilns for burning; spaces and levels setting rings in kiln to facilitate circulation of air about products during burning; spreads sand on floor or setting rings to prevent cohesion of products during burning; lifts and positions products on setting rings, using hoist or manually with resistance of helpers; examines products for cracks and discards defective products; closes kiln door and seals it with clay to prevent escape of heat. May unload baked articles when kiln cools down to required temperature. May feed fuel and fire kiln. May assist kilnman in regulating draught to kiln chamber.

**8131.79 Bricklayer (Brick & Tile)** repairs and rebuilds tunnel, periodic, and shuttle kilns used to burn tile, brick, and sewer pipe: Examines kilns after burning cycles to determine need for repair. Lays firebrick to construct casing walls, flues, feather walls, and burner wickets, using mortar, trowels, plumbobs, hammers, and brick. Spreads plastic refractories over exposed brickwork to protect against deterioration by heat. Lays brick flooring in periodic kilns.

**8131.80 Graduating Machine Operator (Glass); Graduator, Glass** sets and operates graduating machine to scratch measurements on wax-coated glass measuring appliances or apparatus. Places apparatus in position on machine; calculates gear combinations to obtain specified graduating intervals on apparatus, and sets machine accordingly ; starts and operates machine to cut or scratch graduations on apparatus; stops machine and readjusts graduating intervals to ensure proper graduation.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8131.90 Glass and Ceramics Kiln and Related Machine Operators, Other** include workers who operate and monitor kilns, furnaces and other machinery and equipment used in the manufacture of glass, ceramics, porcelain or bricks not elsewhere classified.

### **8138 SUPERVISORS AND FOREMEN, GLASS, CERAMICS AND RELATED PLANT WORKERS**

Supervisors and foremen, glass, ceramics and related plant workers supervise various operations for manufacture of glass and glass products, ceramics articles, abrasive wheels, bricks etc., and guide workers as necessary.

**8138.10 Supervisor and Foreman, Glass Forming and Related Activities** supervises various operations for manufacture of glass and glass products and ensures production to required specifications. Studies details of type and quality of glass or glass product to be made and explains tasks to be performed and precautions to be taken, for correct manufacture to workers. Conducts operations according to type of manufacture. Guides workers in mixing ingredients, controlling kiln temperature, and processing operations like blowing, drawing, rolling, cutting and grinding glass to required specifications, etc., as necessary to ensure desired production. Keeps kilns and appliances in working order, replenishes stock of raw materials and maintains production chart and prescribed records. Enforces safety measures and necessary steps to avoid wastage and proper use of men and materials. May be designated according to section supervised or operation controlled. May specialise in manufacture of particular type of glass or manufacture process.

**8138.20 Supervisor and Foreman, Ceramics and Related Activities** supervises various operations for manufacture of ceramic articles, abrasive wheels, bricks etc., and ensures production to required finish and specifications. Studies drawings and specifications of articles to be made and other necessary details for different stages of work to respective workers. Supervises and controls mixing of ingredients, crushing, casting, moulding, heating, baking, glazing and other operations as necessary according to articles being made and section

supervised. Ensures correct production and takes steps to avoid loss and wastage and achieve proper use of men and materials. Maintains prescribed records and registers, replenishes stock of raw materials and keeps machines, kilns and equipment in proper working order. May specialise in any particular type of branch of production and be designated accordingly.

### **8139 GLASS, CERAMICS AND RELATED PLANT OPERATORS, n.e.c.**

Glass, ceramics and related plant operators, mix raw material and operate various types of machines connected with manufacture of glass, ceramics and pottery articles and include those not elsewhere classified.

#### **8139.10 Batch Mixer; Mixingman (Glass)**

weighs ingredients such as sand, soda, potash, cullet (waste glass) in prescribed quantities and mixes them in revolving drum for melting into glass. Collects required ingredients such as sand, soda, potash, cullet and mixes them in prescribed quantities according to formula; dumps ingredients in revolving drum of machine using hand shovel; adds colouring ingredients to Mixer where necessary; closes lid of drum, starts machine and allows machine to rotate drum for set period for uniform mixing ; collects batch samples for laboratory tests; stops machine when mixing is complete ; opens lid of drum and empties contents into receptacle placed below; places batch near furnace for melting; maintains record of number and nature of batches mixed during shift; keeps surroundings clean and tidy. May oil and clean machine. May feed furnace with batch mixer.

**8139.15 Abrasive Mixer** tends mixing machine to make abrasive compounds for use in making, grinding, polishing and buffing wheels and hones. Calculates amount of grit, clay and adhesive required according to formulas. Weighs out ingredients, dumps them into mixing machine and starts mixing machine. Feels mixture and adds water and resins until specified consistency is attained. Scoopes mixed compound into oscillating sieve to screen out lumps and oversized granules. Dumps compound into barrels for further processing. Records quantities of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

ingredients used in each mix. May operate mixing machine for making ceramics and like products.

**8139.20 Mixing Machine Operator (Abrasives)** mixes various ingredients according to formula in mixing machine for making abrasive mixture. Collects required ingredients from near by bins and fills mixing bowl of machine with prescribed quantities by opening and closing valves. Starts machine to turn paddles in mixing bowl; runs machine for specified period or until ingredients are thoroughly mixed. Stops machine and drains mixture from bowl. Cleans machine using compressed air at end of shift.

**8139.30 Ball Mill Operator ; Ball Mill Attendant; Miller (Cement and Ceramics)** operates ball mill for finally grinding clay, rock, clinker etc. into slurry (thin paste or semi-fluid mixture), powder and cement; checks that pebbles or balls, are filled in cylinder; feeds cylinder with requisite amount of material and water through opening or regulates feed and flow of water by manipulating valves of mill; adjusts air-drift when grinding rock of clinker into powder or cement to avoid jamming or choking; closes opening, starts machine and runs it for specified time ensuring grinding of material to required fineness; stops machine and tilts cylinder to remove ground material or watches delivery of slurry through delivery-end while machine is in operation. May be designated according to material ground or industry in which worked such as SLURRY MILLER (CERAMICS or CEMENT MILLER). May tend one or more grinding mills.

**8139.40 Pug Mill Operator; Pug Mill Attendant (Ceramics)** operates a machine (Pug mill) that mixes clay with water to knead it into a suitable plastic condition for moulding clay or porcelain articles. Sets appropriate die to pug mill according to clay slab and round required; starts machine to regulate speed of shafts provided with helical knives to rotate in opposite direction thus press clay towards exit into granular condition which is subjected to further mixing in lower chamber; feeds cakes of filter pressed clay into mixing chamber of machine by hand or opens slide gate and

valve to permit dry clay and water to flow into mixing chamber in specified proportion; examines clay for consistency as it leaves machine and regulates valves to change proportion of water to clay as required; collects pressed and cut clay slab as ejected by machine. Cleans and oils machine. May make minor repairs to machine.

**8139.50 Shaving Machine Operator (Abrasive)** dresses abrasive material to required shape and size using shaving machine and traversible cutter or shaver. Selects template according to article to be finished; places abrasive article on rotating platform of machine; selects required type and size of blade according to nature of dressing desired and fits it to tool holder of movable arm of machine; starts machine to rotate wheel; adjusts centering of abrasive article pushing by hand to correct position ; lowers arm of machine fitted with shaving blade and depresses it slowly on article to trim edges and other area to desired shape and size; removes shavings at frequent intervals by blowing compressed air; measures article with calipers, gauges, etc., to ensure conformity with specification; cleans machine with compressed air at end of shift. May work from blue prints.

**8139.60 Slip Maker (Ceramics)** operates mixing machine (blunger) in which different kinds of clay is mixed into their semi-liquid form (slip) for making ceramic products. Regulates flow of materials into mixer; starts mixer and allows it to run for specified time, pumps slip over magnets to remove any iron or steel particles and through filter process to remove excess water, regulating flow by means of a valve; cleans filters and magnets with water as required ; washes screens and magnets to remove foreign particles and sludge using hose. May mix clays according to formula. May undertake minor repairs to machine. May operate Ball Mill to make slurry.

**8139.65 Glaze Maker** mixes, grinds, fuses and regrinds ingredients such as borax, lead, sand and lime to make glaze. Weighs out materials, dumps these into grinding mill and grinds them for specified time. Drains out mixture, passes it through screens and heats it in kiln for prescribed period to fuse it. Regrinds fused material into fine powder and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

mixes it with water to form stop for use in dipping processes.

**8139.70 Edge Operator (Abrasive)** trims and smooths edges of abrasive wheels over grinding machine. Mounts abrasive wheel or article to spindle of machine either singly or in packs; aligns wheels and fastens article securely by tightening nuts and bolts. Selects required type of star dresser wheel; slides star dresser wheel to machine groove so that it faces emery wheel to be trimmed; starts machine by pressing electric button and sets speed of machine to rotate abrasive wheel at required speed; moves by hand dresser wheel along groove, forward and backward to trim edges of wheels at set speed; trims and smooths edges to required specifications by stopping machine at frequent intervals and checking size and shape of material with measuring instruments ; cleans article and machine with compressed air to remove dust and powder.

**8139.75 Wet Disc Operator (Abrasive ) ; Disc Grinder** grinds and polishes sharpening stones and sticks, by hand on power operated disc grinder. Presses switch button to start disc grinding machine fitted with rotating grinding iron table; opens water tap and regulates its flow to fine jet over rotating table of machine; fills hopper with fine sand and opens its bottom plate to allow slow and steady flow of sand over rotating table ; places object (sharpening stone or stick) on rotating table and applies pressure as necessary to grind and polish it to required finish. Cleans article in water and frequently checks it with measuring instruments for size, smoothness and uniformity; repeats process by increasing supply of sand and water as necessary ; cleans finished article in water; washes and cleans machine with water at end of shift.

**8139.80 Burner, Cement; Kilnman, Cement** operates cylindrical leaning kiln rotating on an inclined axis to burn slurry, (thick mixture of lime stone and other raw materials) into clinkers for manufacture of cement. Lights kiln furnace and supplies pulverised coal mixed with compressed air or high pressure air through feed pipes to burn slurry at required temperature ; operates switches and controls levers at panel board at Burners platform to rotate kiln at set speed

and to open supply channel of slurry into kiln and regulate flow of slurry in rotating kiln to get it calcined and burnt into cement clinker (hard mass of burnt clay and stone); observes intensity of flame, its colour and progress of burning of moving clinker inside kiln to maintain required temperature by regulating coal and air supply; notes and records various control panel readings; regulates proper amount of feed, speed of kiln, coal blast and draught to ensure production of clinker of right quality; visits frequently different sections of rotary kiln and coal grinding mill for efficient performance; stops kiln, if any defect develops in any of its auxiliaries such as cooler, drag chain, clinker elevator, concentrator etc. May be incharge of one or more rotary kilns.

**8139.82 Clay Modeler** molds full-sized or scale models of products, such as automobiles, automobile parts, television sets, radios, washers, refrigerators, caskets, or boats from clay following artist's sketches or from verbal instructions: Builds rough lumber form to fit around model or centers preformed lath-covered wood frame on grid platform. Kneads clay into slots between laths so clay will adhere to frame. Molds clay by hand to approximate shape. Pulls sheet aluminum forming tool over surface of clay to shape areas that have constant cross sections. Shapes sculptured surfaces, using various types of sculptor's tools and scrapers. Verifies uniformity and smoothness of curved surfaces with splines and sweeps. Scrapes clay from high areas and builds up and smooths low areas to attain desired shape. Cuts cardboard templates for use as guides to shape symmetrical sections. Takes measurements from completed half of model and duplicates them on unfinished half to make both sides symmetrical. Covers bumpers, lights, door handles, and other parts with aluminum foil to simulate chrome or coloured glass.

**8139.85 Fiberglass-Machine Operator** operates machine to spray melted glass fibers onto products, such as boat hulls and lawn furniture: Feeds strands of raw fiberglass into machine, monitors gauges, and moves controls to obtain specified temperature, pressure, and flow rate of molten glass through spray jets onto article to be coated.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

Cleans and adjusts machine, according to maintenance schedule or instructions from supervisor, using handtools and prescribed cleaning agents.

**8139.90 Glass, Ceramics and Related Plant Operators, Other** include all other operators engaged in glass, ceramics and related plant operation activities not elsewhere classified.

### **814 WOOD PROCESSING AND PAPERMAKING PLANT OPERATORS**

Wood processing and papermaking plant operators operate and monitor machinery and equipment which saw, cut and grind wood in preparation for further use, convert wood and other materials in to pulp, and make paper from pulp.

### **8141 WOOD PROCESSING PLANT OPERATORS**

Wood processing and papermaking plant operators operate and monitor machinery and equipment for sawing wood, cutting veneer and making plywood, and otherwise prepare wood for further use.

**8141.10 Wood Sawyer, Machine, General** sets and operates different kinds of wood sawing machine such as band saw, circular saw, crosscut saw etc, for sawing timber to required sizes. Selects and sets circular saw, band saw or cross cut saw as appropriate securely on machine ensuring proper alignment and tension, adjusts guides, steps and applies other controls to determine speed and quality of cut according to nature of wood and size of planks to be cut. Places timber or logs over machine table, using hoists, pulleys, etc. Adjusts or inserts end stops and gauges on table to desired length and width and starts machine. Pushes log against running saw along marking, removes cut wood from table and repeats process. May measure log and scantlings and calculate percentage of turn over. May sharpen saws and clean and oil machine to maintain it in working order. May specialize in any particular type of sawing machine and be designated accordingly.

**8141.20 Woods Sawyer, Edger;Edger Machine Operator** sets and operates

multiple blade sawing machine to straighten uneven edges and cut rough wood planks into boards of required widths. Collects wood planks and determines depth of cut necessary to obtain straight edge, places planks on edger table. Checks sharpness of saw and sets and spaces saw blades to required positions to cut plank to required dimensions. Adjusts power and speed of feeding mechanism according to thickness of plank. Starts machine and pushes plank into feed rollers to carry it into saw cutters. Cuts and straightens uneven edges to shape them into planks of desired width,. Checks edging and cutting of plank to ensure accuracy and quality and readjusts blades when necessary, cleans and oils machine. May sharpen or replace dull saw blades .May operate other power driven wood working machine.

**8141.25 Band Saw Operator** operators power driven endless steel band saw to cut log beams or planks to required sizes, Selects and fits band saw of appropriate size and sharpness over pulley of machine depending on type of wood to be cut and secures it tightly by turning hand wheels of machine ensuring proper alignment and tension. Places log or timber over platform of machine using hoisting equipment or with help of workers and secures it firmly to traverser with clamps, hooks, wedges etc. Adjusts machine table, guides, stops, and other controls to ensure that band saw cuts log or clamps to required sizes. Selects speed for movement or rotation of band saw, starts machine and operates hand lever to move traverser with log against rotating saw for cutting log or plank to required sizes. Controls movement of log against rotating saw, slowing its speed when knots in wood are to be cut. Removes cut pieces from table. Cleans sticky saw dust from pulleys and band saw to remove friction and oil machine. May sharpen teeth of saw over grinding machine. May braze joints of band saw. May operate vertical or horizontal log band mill.

**8141.30 Circular Saw Operator** saws plank and lumber by power driven circular saw. Selects and fits circular saw of appropriate size (toothed disk) to spindle of machine and secures it tightly in position with nuts and bolts. Adjusts machine table to required height and sets guide setters on machine table according to size of plank to be cut .

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Sets cutting angle of saw if required and starts machine to rotate spindle with disk at required speed. Gets timber placed on machine table using hoist and other equipment and adjusts it against guide setter. Pushes timber along guide setter against rotating saw for cutting it and places cut pieces at one end. Cleans and oils machine. May sharpen teeth of saw manually or on grinding machine.

**8141.40 Cylindrical Saw Operator** sets and operates power cylindrical saw to cut square wooden slabs in to round blocks. Studies drawings or sample of product desired. Collects wood files and smoothens tothing and rough edges with tothing plane, scraper or sand paper and determines dimensions for cutting wood into round block. Places wooden slab on machine table, selects appropriate circular saw and mounts it on either head of machine. Fixes cutter head on machine and adjusts guides. Operates machine with foot paddle to move wood piece up and down and cut specimen piece into round block according to measurements. Checks specimen with drawing or sample makes necessary adjustment to tools or machine setup and continues operation. May clean and oil machine. May make and grind tools. May operate other wood working machines.

**8141.50 Cross –Cut Saw Operator** sets and operates power driven swinging circular or chain saw to cut timber into desired lengths. Sets machine and adjusts end stop according to length of stock desired. Places lumber on machine table against back and end stocks, holding it firmly to table. Starts machine, pulls saw across piece and allows it (saw) to swing back to idling position when cut is completed. Removes cut length from table. Slides lumber further along table to end stop and continues operation. May clean and oil machine. May sharpen or replace dull saw blades. May operate other power driven wood-working machine.

**8141.55 Veneer Cutter; Veneer Machine Operator** sets and operates rotary cutting machine for cutting wood stock into thin shaving or veneer of required sizes. Selects cutters and fits them on to rotating spindle of machine. Mounts and fastens wood stock in position on machine table. Adjusts blades in

machines close to wood stock and starts machine to cut wood into thin shavings or veneers of required size. Checks quality of shaving and veneers, ensuring that no damaged wood is processed. May fit circular saw or blades to process wood stock. May grind and sharpen tools.

**8141.60 Peeling Machine Operator** sets and operates wood peeling machine for cutting wooden billets into veneers of required size and thickness for making match boxes, splints, plywood, etc. Selects and fits cutting required sizes of veneer and scouring of grooves on it for folding it. Adjusts and fastens billet on machine by tightening end forks of rotary lathe sets angle of cutting tool. Adjusts gap between pressure bar and knife and operates machine to remove required size of thin strips of veneer from surface of billet. Checks size of veneer to ensure required specification. Runs machine at steady speed to obtain uniform sized strips eliminating knotted and defective area of billet. Replaces blunt cutters and lancets. May clean and oil machine. May attend to running repairs of machine.

**8141.62 Barrel-Lathe Operator, Outside (Wood Container)** operates machine to scrape and smooth outer surface of barrel by holding handtools against barrel: Removes temporary hoops from barrel and places barrel horizontally on barrel rest. Starts machine. Clamps barrel between chucks of lathe. Holds barrel plane against surface of revolving barrel and guides tool along length of barrel to scrape and smooth barrel. Lifts tool from surface of barrel, releases pressure of tail chuck on barrel, and lifts barrel from machine.

**8141.65 Wood Chopping Machine Operator** sets and operates wood chopping machine for cutting veneer layers into required sizes. Adjusts machine table, guides, stops and other controls depending on size of veneer or splint to be cut. Places veneer pieces on machine table in position and adjusts it against guide setter. Starts machine and slides veneer pieces along table against end stop to cut them as required. Removes cut pieces of veneer. May clean and oil machine.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8141.70 Core Laying Machine Operator** tends machine, which automatically lays face, back, and core veneer sheets in sequence and spreads glue on core sheets to form plywood panels. Starts machine, observes its operation, and turns wheels, valves and dials to adjust and synchronize conveyors, reach end vacuum of mechanical arms, tension on glue-spreading rollers, and to regulate flow of glue. Pushes pedal to control conveyor, which moves stacked panels to hot plate presses.

**8141.75 Core Layer, Plywood** assembles plywood panels from glue covered veneer sheets, core board and face sheets, working as member of team. Receives veneer sheets as they emerge from glue spreader and places them cross-grained in sequence on wooden core until specified thickness is obtained. Pushes trays of plywood on to conveyor or stacks plywood on hand truck. May assist in cleaning rollers of glue spreader. May brush glue on irregularly shaped veneer sheets which do not fit in glue spreader.

**8141.90 Wood Processing and Papermaking Plant Operators, Other** perform variety of routine and low skilled tasks such as holding lumber while sawing, feeding boards and planks against cutter, spreading glue in adjacent surfaces etc. and may be designated as Sawyer Helper, Gluing Machine Operator, Paster, Wood Clipping Machine Operator, etc.

#### **8142 PAPER PULP PLANT OPERATORS**

Paper pulp plant operators operate and monitor machinery and equipment which converts materials such as wood, rags, esparto, straw, scrap-pulp and paper in to stock for use in papermaking.

**8142.10 Chipperman, Paper Pulp; Chipping Machine Operator, Paper Pulp** operates machine to cut logs, wooden-blocks, bamboo etc. into small chips for making paper pulp. Selects cutting blade according to material to be chipped and mounts it on cutting head of chipping machine. Starts machine and feeds logs, blocks, pieces of stumps or other wood into hopper of chipped machine; Removes chips

when container is filled. May segregate over-size or unusable wood. May inspect and change knives on machine.

**8142.15 Grinder, Paper Pulp; Grinding Machine Operator, Paper Pulp** operates power-driven grinding machine to reduce wood chips into pulp for use in making paper, adjusts distance between grinding stones in machine, loads hopper with chips, starts machine and regulates water sprays to cool grindstones and control consistency of pulp. Sets pressure of hydraulic pistons to force material between revolving stones; observes colour of flowing pulp for evidence of bans caused by dulled or broken grindstones or by jamming of material; loosens jams with hand tools and notifies supervisor of needed repairs. May be designated according to type of grinding machine used.

**8142.20 Digester Operator, Paper Pulp; Rag Boiler Operator, Paper Pulp Operates** boiler (cooker) to convert raw materials into paper pulp. Supervises charging of cooker with ingredients such as wood chips, rags, straw and waste paper shreds. Directs adding of chemicals and admission of steam to raise temperature and pressure. Observes gauges and makes adjustments to maintain desired operating conditions. Tests samples by titration or colour tests to determine stage of cooking. When process completed, drains liquid from digester and instructs others in removal of cooked pulp. May be designated according to materials processed or chemicals used.

**8142.25 Sorter, Paper Pulp** sorts and picks rags, waste papers, straw, etc. to eliminate foreign and undesirable matter for making paper pulp. Spreads stock on floor; discards coloured, greasy and other undesirable material; packs acceptable material in bags. May be designated **DUSTER, PAPER PULP** if engaged in manually rotating conical screen for removing dust from waste material.

**8142.30 Cutter, Paper Pulp** cuts rags, waste paper, straw, etc. to small pieces with cutting machine for making paper pulp, appropriate cutter blade on cutting head of machine. Places material such as rags, waste paper and straw on feeder roll or conveyor

## NATIONAL CLASSIFICATION OF OCCUPATIONS

belt of machine. Starts machine, examines cut material for size and adjusts or sharpens machine knives if necessary. May clean dirt and dust from dust compartment.

**8142.35 Liquor Maker, Paper Pulp** prepares liquor for cooking paper pulp. Collects standard chemical substances such as lime and soda ash and mixes them with water in fixed proportions in vat; agitates mixture to dissolve solids and produce uniform solution; takes samples periodically to determine concentration.

**8142.40 Valve Operator, Paper Pulp** operates valves to load digester and cook ingredients into paper pulp. Pours or dumps items such as wood, amps, straw, and bamboo shreds into drum, fastens cover and as directed turns valves to admit steam, water and chemicals needed to cook and digest material. When Digester Operator determines cooking is complete, opens valves to blow pulp from cooker. Makes minor repairs such as repacking pump valves and cooks.

**8142.45 Causticman, Paper Pulp** processes paper pulp to required viscosity by treating it with caustic acid. Opens valves to load mixing tank with soda ash and milk of lime in predetermined quantities; starts agitators to dissolve and mix ingredients. Measures specific gravity and adds more ingredients or water as needed. Pipes mixture to reactor tank and continuously samples concentration to determine its viscosity.

**8142.50 Bleacher, Paper Pulp; Bleaching Machine Operator, Paper Pulp** operates bleaching equipment that bleaches material, such as wood pulp, rags, straw or waste-paper pulp. Charges machine with material and bleaching solution and starts agitator; admits steam for heating mixture and regulates valves in accordance with temperature readings; observes bleaching process, notes colour of material and sends samples to laboratory for testing; transfers bleached material into washer for neutralizing it with water sprays, then to blending tank for mixing with other batches to obtain uniform quality. May add chemical during bleaching process and make chemical or electrolytic tests. May prepare bleaching solutions and be designated accordingly.

**8142.55 Beaterman, Paper Pulp; Beater Operator, Paper Pulp** operates machine that mixes, beats and hydrates pulp and other ingredients used in making paper. Supervises charging of machine with pulp, fillers, size, dyes, alum and other chemicals; sets and adjusts beater roller for desired degree of hydration; as material is beaten, examines it for consistency and size of fibres, and sends samples to laboratory for testing; transfers completed batch to storage tank and starts agitator to maintain consistency. May mix and cook colouring matter for dyeing mixture.

**8142.60 Agitator, Paper Pulp** agitates paper pulp in semi-liquid stage on sieve to spread pulp evenly. Pours semi-liquid pulp on sieve, agitates sieve containing pulp to drain off surplus water and to spread pulp evenly; picks out dirt and other foreign matter and flips partially dried pulp on to felt sheet for later pressing and drying.

**8142.90 Paper Pulp Preparers, Other; Paper Preparing Operatives** perform various routine and low skilled tasks in preparing paper pulp such as attending to operation of pulp washing, refining, sizing, controlling flow of pulp, etc. and may be designated as: **Brown-Stock Washer** screens and washes unbleached pulp by machine to remove knots and uncooked chips and to wash out cooking liquor.

#### 8143 PAPER MAKING PLANT OPERATORS

Paper making plant operators operate and monitor machinery and equipment which makes paper, paper board and sheet pulp from pulp stock.

**8143.10 Machine Operator, Paper** sets up and operates paper-making machine to convert wet pulp into paper or paper board. Starts flow of paper pulp from storage tank through rotary screens to machine, adding water as necessary to thin pulp; removes dirt and other foreign matter from rotary screens and regulates flow of pulp to moving wire mesh belt on which paper is formed. Coordinates speed of belt and flow of pulp to obtain paper of desired weight. Sets machine controls for width, thickness and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

moisture content of paper. Threads formed paper between press rolls to squeeze out moisture and give it shape; supervises machine crew in drying, sizing, calendaring, winding and cutting paper. Adjusts, cleans, repairs and replaces machine parts. May weigh samples of paper and install Dandy Rollers to impress water mark in paper.

**8143.15 Machineman Paper, Wet End** operates section of machine in which wet pulp, fed on an endless wire-mesh belt, is formed into paper. Starts flow of stuff from storage chest through rotary screens to machine; adds water as necessary to thin stuff; removes dirt and other foreign matter from screens and regulates flow of stuff to obtain paper of desired weight; sets machine controls for width, thickness and moisture content of paper; threads formed paper between press rolls. Supervises machine crew drying, sizing, calendaring, winding and cutting paper. May weigh samples of paper and install Dandy Rollers to impress water mark in paper.

**8143.20 Wireboy, Paper** adjusts wet felt between presses to ensure that paper is not spoiled due to faulty movement over endless wire-mesh belt. Checks flow of paper pulp on wire-mesh belt through rotary screens to machine and adjusts position of wet felt between presses so that paper is not spoiled due to faulty travel over wire mesh; examines and marks defects and informs Machineman about malfunction; separates felt and paper after pressing.

**8143.25 Machineman Paper, Dry End; Back Tender, Paper** operates section of paper-making machine in which paper is dried, calendered, wound on reels. Threads paper through drier and calender rollers; adjusts controls to regulate tension of paper, temperature of drier rollers and pressure of calender rollers; examines paper for defects and marks defective portions for removal at reel; sets up machinery and directs workers in slitting and rewinding paper. May operate sizing tub when surface sizing is desired and may spray paper with steam, water, or dyes to obtain specified finish.

**8143.30 Cutter, Paper; Guillotineman, Paper** cuts paper or card-board sheets to desired size on cutting machine. Adjusts

guides on scale to obtain specified length of sheet; places sheets against guide and presses lever to force knife blade through sheets. Turns stack, resets, guides and cuts sheets breadthwise. Cleans and oils machine. May be designated according to type of knife used, as **GUILLOTINE CUTTER**.

**8143.35 Finisher, Paper** sorts, counts and packs paper in standard quantities. Checks and examines cut paper sheets for defects; removes defective and non-standard sheets, counts sheets of finished paper into quires or reams, packs them in labeled wrappers; seals bundles with gummed tape.

**8143.40 Vatman, Hand Made Paper; Paper Drifter** dips screen into paper pulp and drains off water after pulp settles on wireframe. Fits beveled wooden frame (deckle) on wiremesh mould; checks consistency of paper pulp in vat and adds water as necessary to thin pulp; stirs pulp with hand or wooden stick to remove dirt and foreign matter and mix pulp properly; dips mould with deckle into paper pulp; gauges amount of pulp to be lifted, with draws mould, and forms "waterleaf" by shaking to intertwine fibres of pulp; removes deckle. May work as **TRANSFERER, HAND MADE PAPER** or **PRESSER HAND MADE PAPER**.

**8143.45 Transferer, Hand Made Paper; Coucher** turns over paper mould and deposits sheet of hand-made "waterleaf" on wet felt. Removes deckle (beveled wooden frame) from pulp vat and turns over mould to deposit sheet of hand made "waterleaf" on wet felt; piles "waterleaf" and felts alternately to form a stack for pressing; forms pile. May perform duties of Vatman and Presser.

**8143.50 Tub-Sizer, Hand Made Paper** dips paper in sizing solution to make it non-absorbent. Cooks ingredients (glue, starch or similar agent) in water; adds chemicals to prevent decomposition; transfers size to storage tank or tub; dips individual sheets in solution to moisten both surfaces; lays out dipped sheets for further processing.

**8143.55 Drier, Hand Made Paper** dries sized paper sheets. Separates sheets from compressed pack and suspends them on soft

## NATIONAL CLASSIFICATION OF OCCUPATIONS

ropes or lays them out on hesain sheets to dry. Checks paper for dryness; removes and packs dried sheets.

**8143.60 Presser, Hand Made Paper** operates screw press manually to squeeze and remove moisture from paper sheets. Places moist sheets, wrapped in cloth, in presser; closes press to squeeze moisture from paper.

**8143.65 Calenderman, Paper** operates and adjusts calendaring machine equipped with heated or chilled rollers to impart suitable gloss and finish to surface of paper. Positions roll of paper on reel stand of machine; threads paper between machine rolls and wraps end around rewinder reel; inserts badding between rollers and running paper to remove crease in paper; adjusts controls to regulate speed and tensions of paper, temperature and pressure of rollers; examines paper and ensures it is free from dirt, slime spots, wrinkles, spots; ensures correct compactness of winding; mends breaks in paper with glue or tissue or heated flat iron; tests paper samples for finish and gloss with special instruments. May attend to other processes in paper making.

**8143.70 Calenderman, Hand-made Paper** glazes paper by placing sheets between two zinc/iron plates and pressing them in manually operated stack of rollers. Collects dried paper sheets to be calendered; sets and arranges sheets of paper in between iron/zinc plates; inserts plates into rollers; moves handle to press paper sheets between rollers in order to glaze and smoothen them. Removes glazed paper from plates, stacks them separately. May operate electrically driven calendering machine.

**8143.80 Coating -Machine Operator, Hardboard (Paper Goods)** operates machine to spray paint and print surface finish on hardboard sheets: Fills hoppers of machine with ready-mixed paint. Starts machine and moves controls to regulate spraying action, specified tension of rollers, and temperature of infrared drying lamps. Tests density of paint, using viscometer. May tend machine that coats unfinished insulation board with talc to prevent sticking during subsequent pressing.

**8143.90 Paper Making Plant Operators, Other** perform various routine and low skilled tasks in preparation of paper such as putting rolls of paper on cutting machine, peeling sheets of paper from each other and are designated as; Cutter Helper assists Cutter Operator by hoisting rolls of paper into Cutter rack, threading paper into machine and adjusting speed of cutter. Peeler paper assists in peeling sheets of paper from each other, etc.

### 8148 SUPERVISORS AND FOREMEN, WOOD PROCESSING AND PAPER MAKING PLANT OPERATORS

Supervisors and foremen, wood processing and paper making plant operators supervise and guide workers engaged in making paper and paper pulp and in preparing and treating wood for further operations.

**8148.10 Supervisor and Foreman ,Wood Preparation** supervises and guides workers engaged in treating wood by process of seasoning, bending, impregnating with chemical etc. and ensures desired finish for further processing guides workers in setting and controlling temperature and humidity of kiln, impregnation wood with chemicals to prevent decay, bending wood to required shape by controlled steaming, heating softening and drying etc , and ensures desired finish for further processing or other wise. Arranges materials, chemicals etc. according to requirements and ensures stipulated performance at every stage of work. May examine wood to plan treating, May be designated according to section or work supervised.(Excluded are Technologists described elsewhere) .

**8148.20 Supervisor and Foreman, Paper Pulp and Paper Making** supervises and guides workers engaged in various paper pulp and paper making operations and ensures desired quality and finish. Guides workers in grinding and sorting paper pulp, liquor making, controlling flow of caustic solution in digester, operating digester, heating and paper making machines, etc., as required. Ensures efficient operation and performance of all men and machines and manufacture of paper according to prescribed specifications. Gets samples tested while processing and makes necessary

## NATIONAL CLASSIFICATION OF OCCUPATIONS

adjustments according to test results. Arranges for materials and chemicals as required, maintains tools, machines and equipment in working order and ensures compliance with safety rules and regulations. May test samples, while processing and suggests modifications. May be designated according to section or work supervised. (Excluded are Technologists and Chemists described elsewhere).

**8148.90 Supervisors and Foremen, Wood Preparation, Paper Pulp and Paper Making, Other** include all other supervisors and foremen engaged in supervising wood preparation and paper pulp and paper making operations such as those who are experienced in cottage industry and manual process, not elsewhere classified.

### 815 CHEMICAL PROCESSING PLANT OPERATORS

Chemical processing plant operators operate and monitor machinery and equipment which saw, cut and grind wood in preparation for further use, convert wood and other materials in to pulp, and make paper from pulp.

#### 8151 CRUSHING, GRINDING AND CHEMICAL MIXING MACHINERY OPERATORS

Crushing, grinding and chemical mixing machinery operators operate and monitor machinery which crushes, grinds, mixes and blends chemical and other materials used in chemical and related processes.

**8151.10 Crusher Operator, Chemical** operates power driven crushing machine to break solid lumps of chemicals or other materials into smaller size for further processing. Collects material to be crushed; fills hopper of machine by hand or by operating mechanical feed; fixes screen to machine to retain pieces which are too large. Operates controls to start, stop and regulate speed of machine; breaks oversize or jammed lumps with a hammer; discharges crushed material into outlet container-cleans crusher and work-area. May weigh the material before and after crushing to know loss in crushing. May be designated

according to type of process adopted/industry attached to.

**8151.20 Miller; Mill House Operator; Ball Mill Attendant; Ball Mill Operator Grinder (Chemical)** feeds and tends a machine that grinds solid chemicals or other materials, used in chemical and related processes, to reduce them to particles of specified size. Selects and fits to machine screens according to size of particles to be produced; starts machine and feeds material into mill; observes grinding process, takes samples of ground material to ensure that particles of required size are obtained; discharges ground material into outlet container and supervises the removal of ground material. May keep records of weight of material ground.

**8151.30 Pulveriser Operator, Chemical; Disintegrator Attendant, Chemical** feeds and tends power-driven pulverising machine to reduce crushed chemicals or other material into fine particles or dust. Collects material; fixes screen to machine according to fineness of powder particles to be produced. Starts machine and feeds material into machine to pulverize kit to fine powder. Observes disintegrating process, takes samples of pulverised material, and ensures that required fineness is being obtained. Discharges disintegrated material into outlet container; cleans machine and work area.

**8151.40 Mixing Machine Attendant, (Chemical)** feeds and tends machine to mix and blend different solid or liquid ingredients in required proportions. Weighs ingredients according to formulae or specifications and feeds prescribed quantities of ingredients into machine container by hand or by operating valves, pumps or mechanical loaders; starts machine agitators to mix materials thoroughly; adds further ingredients, if required; runs machine until mixing process is completed; removes mixture from machine container; cleans machine and work area and prepares machine for fresh run. Observes and reports abnormalities in blending and mixing.

**8151.45 Compoundman (Match)** operates a grinding and mixing mill to make compound for match heads and match box sides according to formulae. Prepares glue

## NATIONAL CLASSIFICATION OF OCCUPATIONS

solution and maintains it at specified temperature by keeping glue container in boiler; weighs and measures chemical ingredients according to formulae; fills ball mill with chemical ingredients and adds prescribed quantity of water to it; closes lid of ball mill and secures it tightly; starts mill by operating hand lever and runs it for specified period to make chemical paste; stops mill opens lid and fills in glue solution. Closes lid of mill and again runs it for required period to make match head compound of required consistency; stops mill and empties prepared compound into empty drum placed below; places drum on platform of mixing machine platform to place stirring rod of machine immersed inside composition drum; starts machine to agitate stirring rod to mix composition to required consistency; stops machine when ingredients are thoroughly mixed and removes drum to be collected by composition supplier or tableman; keeps place clean and tidy.

**8151.50 Mixer, Hand (Chemical)** mixes by hand, solids or liquids, in prescribed proportions to form mixture of required standard. Loads prescribed quantities of chemical ingredients in mixing bowls or tanks. Adds prescribed quantity of water or other liquids to form a mixture. Mixes by hand all ingredients to make mixture of required moisture, thickness and consistency. Cleans bowls, tanks and place with water, after mixed ingredients kept in bowl or tank have been removed. May carry mixture in containers to digester machine.

**8151.55 Blending Operator, Chemical** sets, feeds and operates blending machine to blend powders, ingredients, etc. homogeniously. Collects chemical ingredients to be blended; weighs or measures ingredients according to formulae or specifications; checks and removes extraneous material; loads it into feed bin; adjusts blending mechanism to regulate fineness of blending. Starts machine and stops it periodically to pick up and examine blended material to determine blending accuracy. Opens bin and discharges blended material for further processing. Cleans machine and work area. May keep record of weights of blended material.

**8151.60 Sieving Machine Attendant, Chemical** feeds crushed or ground chemical material in sieving machine to automatically sift and collect sieved material. Selects sieve of the specified size, suiting thickness or diameter of the sieve material; fixes sieve to the machine; feeds crushed or ground material in machine; starts machine to sift material by required size; stops machine, discharges sieved material, and arranges its storing. May keep record of weights and sizes of sieved material. May sieve material progressively to smaller and finer sizes. May repair defective parts of damaged sieves.

**8151.65 Grading Machine Attendant (Abrasive) Shifting Machine Attendant (Abrasive)** sifts and grades powdered ore or minerals by machine for use as abrasive powder and collects them separately according to their grades. Loads hopper of grading or sifting machine with powder ore; ensures that different grades or mesh of sieves are set to machine by Fitter; places empty containers or bags at delivery end of each sizing or grading compartment; starts machine; maintains steady flow of powder into sieve and pokes rod to remove blocks as necessary; observes operations to ensure correct sifting and sorting of powder according to size of sieving mesh; collects sifted materials according to grades (coarse to fine particles) in bags and stores them in central place. Cleans machine with compressed air at close of shift and keeps surroundings clean and tidy.

**8151.90 Crushers, Grinders and Mixers, Other** include all other crushers, grinders and mixers engaged in various chemical processing operations, not elsewhere classified.

### 8152 CHEMICAL HEAT TREATING PLANT OPERATORS

Chemical heat treating plant operators operate and monitor machinery and equipment which cook, roast and provide other types of heat treatment in chemical and related processes.

**8152.10 Processman, Chemical** process chemical ingredients by mixing in specific proportions, heating, distilling, cooling,



## NATIONAL CLASSIFICATION OF OCCUPATIONS

filtering, blending, percolating, refining, pulverising, etc.. for causing chemical reactions for research or production. Obtains scheme of processing from Chemist; sets apparatus and equipment; collects chemicals in required quantities; regulates feed of gaseous, liquid or solid materials into equipment. Checks progress of process by looking through peep holes, observing temperature readings, pressure gauges and other instruments and making simple chemical tests; regulates material feed, and heating and cooling devices and makes other adjustments necessary to ensure that processes are correctly carried out. Strains, filters and distils chemical substances to obtain required product in purified form. Implements safety measures in regards to operation of plant/machinery and in handling and processing materials such as acids, oils and maintains machinery. May be designated, according to type of material processed or plant in charge of, such as **DISTILLING STILL ATTENDANT, FILTER PRESSMAN**, etc.

**8152.15 Cooker, Chemical** cooks organic or inorganic materials, such as molasses, oils, fats, bones, salts, acids, alkalies, etc. in closed or open pans or plants to purify, mix, compound or dry them to get desired chemical changes. Loads vessel with required materials by hand or by operating mechanical loader or pourers. Controls heating device to ensure that materials attain the required temperature; adds further ingredients and stirs mixture as necessary to obtain required compound or chemical change. Observes temperature, time and other measuring and reading instruments; makes tests, as necessary, to ascertain when cooking process is completed; runs off product into storage tanks or other containers. Implements safety measures in regard to operations of plant/machinery and in handling and processing materials such as acids; oils and maintains machinery. May be designated according to type of cooking vessel used e.g. open vats, boiling pans, kettles, or similar containers or type of process involved.

**8152.20 Roaster, Chemical** roasts or heats chemical substances such as limestone, gypsum, sulphur, wood or bone in oven, kiln, furnace, or similar device or expose

them to open flames to dry them, to give them a special property or to effect required chemical changes. Collects substances and mixes them in required proportion; loads heated cylinders, oven, kiln or other heating device by hand or by mechanical operation, ensures that substances are spread or stacked in a manner to ensure proper heating of substance; controls heating device to maintain materials at correct temperature; observes temperature, time and other measuring instruments, and makes sample tests, as necessary, to ascertain when process completed; stops heating and unloads containers. Implements safety measures in regards to operation of plant/machinery and in handling and processing materials and maintains machinery. May be designated according to type of heating device used, or to type of process involved..

**8152.25 Drier, Chemical; Drier Operator** **Chemical** operates vacuum drying machine for drying chemicals. Collects wet materials in trays or pans and loads them into drier. Maintains constant vacuum by regulating valves to vacuum pump. Regulates valves to obtain desired temperature from steam heat and to operate condenser (apparatus used in condensing moisture from drier). Examines material for moisture content, or secures laboratory analysis of samples, makes running adjustments to correct moisture content. Shuts down drier and removes material dried and time needed to dry material. Empties water collected in condenser by opening valve to admit air and then draw off water. Adjusts, oils and makes minor repairs to equipment. Implements safety measures in regard to operation of plant/machinery and in handling and processing materials. May be designated according to drying plant used or type of process adopted.

**8152.30 Drying Chamber Attendant, Drug** dries tables and powder in drying chamber. Spreads out powder and tables evenly in trays and loads trays on racks and shelves in drying chamber. Closes chamber and applies heat for fixed period of time; checks at frequent intervals to ensure that products are properly dried. Keeps drying chamber clean.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8152.35 Drying Chamber Attendant (Match Boxes)** tends a drying chamber machine to dry matchboxes by regulating speed of conveyor inside drying chamber. Heats and maintains drying chamber at desired temperature by noting readings on meters and gauges. Starts conveyor machine; places match boxes on conveyor belt to carry them through heated chamber; regulates speed of belt through chamber in accordance with temperature of chamber for product to dry. Examines dried boxes coming out of chamber to ensure that they are dried to required quality. Makes necessary adjustments to machine and regulates movement of conveyor in chamber as necessary. May clean and oil conveyor system.

**8152.40 Panman Soap; Soap Boiler** mixes chemicals with fats and fatty acids in required proportions and heats them in pan for making various kinds of soap. Collects required ingredients and mixes them in proper proportion with water and caustic soda; charges it into pan; boils pan with minimum quantity of salt, wherever necessary, for removal of glycerin, and finally adjusts consistency with caustic alkali for ensuring proper consistency and saponification with lowest salt content in the final neat soap; adds colouring matter, perfumes, disinfectant or other fillers after saponification is complete; discharges cooked and finished stuff into settling tank or cooling frames.

**8152.45 Size Maker (Abrasive); Mixing Machine Man (Abrasive)** prepares sizing mixture and ensures its continuous supply to sizing machine (abrasive). Weighs and measures sizing materials such as glue, resin, varnish, solvents, water, etc. as per formulae and fills them in heating kettle or tank fitted with steam pipes; opens steam valve to heat kettle and boil ingredients; allows ingredients to mix and boil for prescribed period; stops supply of steam after set period; opens outlet or drain valve of kettle or tank to drain and maintain regular supply of glue to sizing machine; cleans tank and keeps place clean and tidy.

**8152.50 Paste Maker; Glue Cooker** makes glue paste, gum, or other adhesives according to formulae in steam jacketed

kettles. Collects specified quantities of dry flour, corn-starch, tapioca, washing soda, copper sulphate and other ingredients to prepare desired adhesive paste. Prepares copper sulphate solution by mixing copper sulphate powder with specified quantity of water; fills drum fitted with steam jacket with measured quantity of dry ingredients according to formulae and adds requisite quantity of water and copper sulphate solution in it; closes lid of drum and opens steam valve to admit steam into it for boiling solution for specified period observing thermometer to maintain required temperature; opens valve to drain solution into container when specified consistency is obtained. May draw off and send sample of glue to Chemist for test.

**8152.60 Furnace Operator (Chemical)** controls continuous-process furnace and related equipment to decompose salt cake, forming hydrogen chloride: Starts salt conveyors or shovels salt cake into furnace; turns valves to fill furnace reaction pot with sulfuric acid from supply tank; and sets burners, dampers, and vents to fire furnace to specified temperature and effect liberation of hydrogen chloride. Computes salt and acid requirements, using instrument readings and formulae and sets feed scales and timers for continuous operation or manually regulates feed and temperature controls to maintain production in conformity with plant standards. Removes scale from furnace walls and agitates salt cake to maintain efficient production, using scrapers and rake. Starts or regulates speed of salt-removal device to prepare furnace for new charge. Maintains log of shift production, gauge readings, and equipment failures.

**8152.65 Boiling-Tub Operator (Chemical)** tends tanks in which crude tetryl explosive or nitrocellulose is boiled and washed to remove acids and impurities: Admits batch of crude tetryl slurry to boiling tank. Starts tank agitators and turns valve to admit steam to tank jacket to boil slurry for specified time. Pumps off water after material has settled. Pumps fresh water through tank to wash tetryl and flush away impurities. When boiling nitrocellulose, admits acid to tub and boils contents for specified time, adds neutralizing agent, and repeats process until all nitrocellulose impurities are removed.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

May test acidity of solution, using hydrometer or titration test.

**8152.70 Ammonia Operator** controls converter and auxiliary equipment that combine hydrogen and nitrogen to produce anhydrous ammonia: Lights burner and starts pumps, compressors, scrubbers, and absorption units. Moves controls on panelboard to regulate temperatures of solutions and opens valves to admit heated and purified air and hydrogen into combustion chamber of burner, where nitrogen driven from air combines with hydrogen to form ammonia. Reads instruments, such as thermometers, pressure gauges, and potentiometers. Makes control adjustments according to operating instructions and charts. Pumps fresh solutions into scrubbing and absorption towers when readings indicate excessive alkalinity. Records operational data in logbook. May compute percentage of hydrogen and ammonia in burner gases, using standard test procedure.

**8152.75 Heat Treater** controls heat-treating furnaces, baths and quenching equipment to alter physical and chemical properties of metal objects, using specifications and methods of controlled heating and cooling, such as hardening, tempering, annealing, case-hardening, and normalizing: Determines temperature and time of heating cycle, and type and temperature of baths and quenching medium to attain specified hardness, toughness, and ductility of parts, using standard heat-treating charts, and utilizing knowledge of heat-treating methods, equipment, and properties of metals. Adjusts furnace controls and observes pyrometer to bring furnace to prescribed temperature. Loads parts into furnace. Removes parts after prescribed time and quenches parts in water, oil, brine, or other bath, or allows parts to cool in air. May test hardness of parts. May set up and operate die-quenching machine to prevent parts from warping. May set up and operate electronic induction equipment to heat objects. May align warped fuel elements, containing radioactive uranium, using hydraulic ram straightener.

**8152.90 Cookers, Roasters and Heat Treaters, Other** include all other cookers,

roasters and heat treaters of chemical and related processes such as those engaged in drying chemical solutions by spraying or atomizing process to produce powders, drying materials in drying rooms or in drying cabinets fitted with conveying equipment, etc., not elsewhere classified.

### 8153 CHEMICAL FILTERING AND SEPARATING EQUIPMENT OPERATORS

Chemical filtering and separating equipment operators operate and monitor machines and equipment, which filter and separate chemicals and related materials.

**8153.10 Filter Press Operator** operates filter press machine to filter impurities or other insoluble materials from slurries, chemical solutions or mother liquids. Opens filter press and covers filter plates with canvas, paper or other filtering media; closes press and ensures that its joints make a liquid tight seal; adds diatomaceous earth, saw dust, other settling compound to solution to precipitate impurities; pumps when specified pressure is reached. Removes filtered impurities from screen with compressed air, water or steam, and dislodges solid materials caught between frames. Occasionally replaces damaged filter media and adjusts and makes minor repairs to equipment.

**8153.15 Filter Press Operator (Ceramics)** operates filter press to filter and separate clay from water in slip. Covers filter plates of press with cloth or canvas; closes press, causing plates to come together, forming seal; starts machine and opens valve to pump slip into filter press, where clay is retained and water is squeezed out through filtering media; stops machine when specified pressure is indicated on gauges or when all slip in tank is pumped into press completely; opens filter press plates and removes pressed clay between plates. Cleans press and replaces damaged filter cloth or camods.

**8153.20 Strainer, Liquid** filters liquids or solutions through strainers or filter papers to remove impurities and foreign matter. Selects and places strainer, covered with canvas, cloth, paper or mother filtering media below outlet of cooker; mixes and agitates saw dust or mother settling

## NATIONAL CLASSIFICATION OF OCCUPATIONS

compound with solution to precipitate impurities; opens outlet valve to permit material to filter through strainer into tubs or other containers; cleans and replaces filters. May be designated according to material treated such as **STRAINER, RUBBER; STRAINER PAPER PULP; STRAINER CANNING AND FOOD PRESERVATION**, etc.

**8153.30 Box Filtration Operator; Filterman, Liquid; Filterer, Rotary Drum** filters liquids, using rotary drum filtering screen. Opens valves to regulate flow of solution into filter tanks and starts drums (which are covered with canvas, wire cloth, or other filtering media), rotating valves to control vacuum in drum to draw liquid through filtering media and hold solid particles on drum. Observes intake side of drum to ascertain that scrapers remove solids from drum. Adjusts drum rotation, lifter feed, or vacuum to obtain clear filtrate. May add chemicals to destroy bacterial growth. May tend washing sprays, setters or related equipment. May make minor repairs to equipment. May be designated according to type of solution filtered or solid separated.

**8153.40 Hydro Extractor Operator, Centrifuge Operator** operates centrifuge machine that separates solids from liquids, or liquids of different specific gravity. Fills drum of machine with liquid material. Starts machine and adjusts drum speed to obtain efficient separation of substances; empties containers when separation is completed. May fix and clean filtering media in machine, operate heating attachment on machine and test samples for moisture content. May be designated according to type of materials separated.

**8153.50 Crude Oil Treater (Oil Field)** treats crude oil at wells in chemical, electrical or centrifugal units to remove sediment and water. Tests oil for contents of sediment and water using gravity-separation machines and according to result of test switches oil through treating units, to and from storage tanks or into pipe lines. Adds chemicals to chemical treating unit or routes oil through electrical or centrifugal units to break up oil and water emulsions and drain off water. Precipitates sediment in settling

tanks. Gauges tanks to determine quantity of oil treated and delivered to pipe lines. Operates and maintains water and oil pumps of treating unit. Cleans and makes repairs to units. Records production results of tests and other data. May operate oil heaters to raise oil to desired temperature for treating. May pump wells.

**8153.60 Gauger (Cement)** conducts simple tests of samples of cement in laboratory for physical properties at different stages of production. Collects samples of material, weighs and mixes ingredients to prepare moulds for laboratory test. Sets apparatus and conducts routine tests to determine physical properties such as compression, tensile strength, setting time etc., of cement at various stages of production. Adds or eliminates ingredients as directed by Chemist to remove defects and raise quality of product. Maintains readings and observations for calculations and reference purposes. Cleans and maintains apparatus in good condition. May do minor repairs to apparatus and equipment. May undertake tests independently. May assist Chemist to conduct research work. May store, maintain account of instruments, equipment, apparatus, etc. if required.

**8153.65 Disc Operator (Abrasive)** operates machine, which uses steel shot for producing flat surface on abrasive wheels prior to or sometimes as an alternative to turning. Mounts abrasive wheel on rotating spindle of machine and sets retaining plate ring to keep emery wheel at one point; manipulates levers to lower moveable arm of machine over abrasive wheel to hold it tightly in position; fills hopper of machine with steel grits; starts machine, opens bottom plate and regulates flow of steel grits over rotating wheel of machine. Observes, frequently during operation, grinding and smoothening of surface of abrasive wheel on rotating platform of machine with steel grits and blows off deposited dust and powder with compressed air as necessary; checks thickness and surface of abrasive wheel with measuring instruments such as calipers, gauges, to ensure correct size and finish; stops machine and removes abrasive wheel when required flatness is obtained. May clean and oil machines.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8153.70 Crude-Oil Treater (Petrol & Gas)** operator; pumper; treater Operates chemical, electrical, and centrifugal oil-treatment units to remove sediment and water from crude oil before transporting oil by pipeline to refineries: Opens valves and starts pumps to pump oil from storage tanks to treating units. Opens valves to mix specified chemicals with oil, and adjusts controls to heat mixture to specified temperature. Starts centrifugal machines that break up oil and water emulsions and drain off water. Opens valves and starts pumps to transfer oil into settling tanks where sediment is precipitated from oil. Tests sample in gravity- or centrifugal-separation machine to determine content of oil specified for pipeline transportation. Pumps treated oil into pipelines leading to refinery. Cleans and lubricates motors, pumps, and other moving parts of units. Records data, such as volume of oil treated, operating temperatures of units, and test results. May operate pumps at oil well sites . May tend treating-plant equipment to remove impurities from natural gas.

**8153.80 Brine Maker (Chemical)** tends tanks, filters, and auxiliary equipment that produce brine solution for use in electrolytic cells: Pumps water through salt beds or starts conveyor bringing salt from storage area for dissolution in water, producing mixture of specified salt content. Admits salt water and specified amounts of liquid chemicals, such as caustic soda or acid, to mixing tank to produce brine solution meeting plant standard. Pumps solution to settling tank to settle out impurities and through sand-bed filters for final purification. Draws sample of brine for laboratory analysis or tests density, salt content, and acidity, using hydrometer, salinometer, and pH meter. Turns valves to transfer brine to electrolytic cells and maintain brine at specified levels in supply lines, tanks, and cells. May dump materials into brine to adjust chemical composition to plant standard, using titration test to determine strength of solution. May pump water through resin and carbon beds to demineralize it. May tend heat exchanger to maintain temperature of brine within specified limits.

**8153.90 Filter and Separator Operators, Other** include all other filter and separator operators engaged in straining, filtering,

hydro extraction, etc., not elsewhere classified.

**8154 CHEMICAL STILL AND REACTOR OPERATORS (EXCEPT PETROLEUM AND NATURAL GAS)**

Chemical still and reactor operators (except petroleum and natural gas) operate and monitor equipment which distills and refines chemicals, except petroleum.

**8154.10 Batch-Still Operator, Chemical** operates one or more stills in which batches of liquid chemicals, other than petroleum, are treated to separate them into their chemical constituent such as alcohol beverages, perfume or drugs or to refine those constituents. Manipulates feed valves to fill tank with liquid to desired levels; adjusts valves to control pressure in tank and rate of heating; regulates valves to control amount of condensed vapour returned to tank to enrich vapours driven from it; draws, from containers receiving condensed vapours, product samples for testing either by himself or in laboratory; determines by purity of samples, container to which product should be routed. Maintains record of raw materials drawn, quantity consumed to indicate production capacity of plant; enters in log book condition of plant and abnormalities noticed in distilling during shift for report to Chemist. May make adjustments to still auxiliaries such as condensers and pumps. May operate ordinary type of wood-fire distillation plant. May be designated according to type of chemicals used and industry attached to e.g. **AMMONIA STILL OPERATOR; ALCOHOL STILL OPERATOR; BENZINE STILL OPERATOR.**

**8154.20 Continuous Still Operator, Chemical; Distillation Operator** tends one or more stills in which continuous feed of liquid chemical, other than petroleum is heated to separate into chemical constituents by regulating temperature, pressure, cooling valves etc. – Adjusts feed valves to allow liquid to enter still at prescribed rate; adjusts controls to maintain temperature at various levels of still and to maintain prescribed pressure in still; regulates valves to control amount of condensed vapour returned to still to enrich vapours driven from it; draws, from

## NATIONAL CLASSIFICATION OF OCCUPATIONS

containers receiving condensed vapours, product samples for testing either by himself or in laboratory; determines by purity of samples to which container product should be routed; returns impure samples to main stock; maintains record of temperature, pressure and feed indicator readings. May make adjustments to still auxiliaries such as heat exchangers, absorbers, strippers, boilers and compressors. May specialize in type of chemical treated and be designated accordingly.

**8154.30 Autoclave Operator; Sterilisation**

**Attendant** charges, operates and unloads an autoclave (high-pressure vessel) for processing chemicals, oils, or sterilising bottles, ampoules, etc. Charges or loads vessel with predetermined quantities of chemicals or objects; checks valves for operation; raises temperature of autoclave by increasing steam pressure. Observes pressure and temperature gauges, thermometers, timings and other instruments and makes necessary adjustments to ensure that process or sterilization is carried out correctly. Unloads product on completion of process and prepares vessel for next batch. Implements safety measures in regard to operation of plant/machinery and in handling and processing materials, and maintains machinery. May keep records. May be designated according to product processed or sterilized.

**8154.40 Evaporator Operator; Pan Operator; Vacuum Pan Operator**

charges and operates evaporating tank, vacuum-pan or similar device to concentrate solutions by driving off excess water contents. Pumps weak (liquid) solution into evaporator tank or pan; operates vacuum pump to obtain vacuum in pan, if required; regulates flow of steam into heater coils of evaporator; periodically tests concentrations of solution by use of instruments or by making simple chemical tests; makes necessary adjustments to temperature and pressure to obtain required solution; pumps concentrated solution from evaporator for auxiliary heating. Implements safety measures in regard to operation of plant/machinery and in handling and processing materials, oils and maintains machinery. May tend auxiliary equipment such as settling tanks, preheating tanks, condensers and cooling equipment.

May treat solutions, such as those of glue, glycerine, glucose and caustic soda and be designated accordingly.

**8154.50 Reactor Converter Operator (Chemical Process, except Petroleum)**

operates or tends number of pieces of equipment, other than those used for treating petroleum, which perform sequence of complex operations in chemical reaction process. Regulates feed of gaseous, liquid or solid material into equipment. Checks progress of process by looking through peep holes, observing temperature readings, pressure gauges and other instruments and making simple chemical tests. Regulates material feed and heating or cooling devices and makes other adjustments as necessary to ensure that processes are correctly carried out.

**8154.60 Converter Operator (Grain-Feed Mills)**

controls converter to change starch into glucose or corn syrup, and tests products to verify purity (specified dextrose content): Turns valves to admit steam and water into converter. Introduces starch into converter so that cooking occurs as starch is added. Detects from sound of cooking process formation of paste, and adds acid, as necessary, to reduce viscosity. Closes converter and turns valve to attain specified pressure. Draws off samples, and makes standard iodine and alcohol titration tests. Turns valves to blow syrup into tank when tests indicate conversion is complete.

**8154.65 Distiller (Chemical)**

controls continuous still equipment to distill pine oleoresin into oil of turpentine and rosin: Turns valves to transfer heated oleoresin from melting vats into cleaning, filtering, and washing tanks to clean, filter, and wash trash, foreign matter, and other impurities from resin preparatory to distillation. Pours specified amounts of oxalic acid into tanks to facilitate cleansing process, using graduated cylinder. Drains impurities from wash tanks and starts pump that forces resin into still. Turns valve to circulate water through steam jackets. Observes temperature gauge and turns valve to regulate heat to specified temperature to condense turpentine vapours. Turns valve to drain rosin from still. Observes sample of distillate for clarity and separation of turpentine from oleoresin to

## NATIONAL CLASSIFICATION OF OCCUPATIONS

determine completion of distillation. Occasionally replaces filters in tank and cleans tank as necessary.

**8154.90 Still and Reactor Operators, Other** include all other still and reactor operators engaged in processing chemicals (other than petroleum) such as white lead, starches, glucose, etc., not elsewhere classified.

### **8155 PETROLEUM AND NATURAL GAS REFINING PLANT OPERATORS**

Petroleum and natural gas refining plant operators operate and monitor plant which refines, distils and treats petroleum, petroleum-based products and by-products, or natural gas.

**8155.10 Continuous Still Operator, Petroleum; Stillman, Petroleum** operates one or more continuous stills for distilling or refining crude oil to obtain fuel gas, gasoline, kerosene, diesel oil, lubricating oil, wax, bitumen, etc. Reads processing schedules, operating logs, test results of oil samples, and laboratory recommendations to determine changes in equipment controls required to produce specified quantity and quality of product; moves and sets controls, such as knobs, valves, switches, levers, and index arms on control panels to adjust, maintain, and coordinate process variables, such as flows, temperatures, pressures, vacuum, time, catalyst, and chemicals, by automatic regulation and remote control of processing units, such as heaters furnaces, compressors, exchangers, recharges, absorbers. Moves controls to regulate valves, pumps, compressors, and auxiliary equipment to direct flow of product, reads temperature and pressure gauges and flow meters, records readings, and compiles operating records; tests products for specific gravity and observes their colour to determine whether processing is being carried out properly; makes minor adjustments to equipment; shuts down still for cleaning and opens it up again; supervises workers who assist in operation of still. May fire oil or gas burning furnace through which oil is run to heat it to processing temperature. May specialize in a particular type of still, kind of oil processed, and be designated according to process

involved or plant operated as **ABSORPTION PLANT OPERATOR; PURIFICATION OPERATOR; STILLMAN; CRACKING UNIT; STILLMAN, POLYMERIZATION**, etc.

**8155.20 Still Man, Gas Plant; Desulphurizer Operator; Gas Plant Operator (Petrol Refining)** tends operation of unit in which pressure distillate and non-condensable gases are treated to extract those gases which are used as fuel. Observes various temperature, pressure and flow gauges of unit to ensure that unit is functioning properly and records readings. Adjusts valves to regulate height of liquid level in dephlegmator so that maximum separation of vapours from liquid will be obtained and vapours will be prevented from flowing back into unit and to regulate flow of gases through unit. Operates and controls speed of pumps to regulate flow of liquids through unit. Controls temperature and pressure of unit by setting automatic regulator at points desired. Winds and changes charts on recording meters. Shuts down unit and cleans it out with steam and water, exercising caution to prevent explosion. May oil and grease pumps.

**8155.30 Pump man (Petroleum Refining)** controls pumps and manifold systems to circulate crude semi compressed and finished petroleum products, water and chemical solutions through processing and storage departments of refinery according to schedules or instructions and plans movement of product through lines of processing and storage unit, utilizing knowledge of interconnections and capacities of pipelines, valve manifolds, pumps and tanks. Synchronizes activities with other pump houses to assure continuous flow of products and minimum contamination between products. Starts battery of pumps, observes pressure and flow meter and turns valve to regulate pumping speeds according to schedules. Turns hand wheels to open line valves to direct flow of product. Signals by telephone to operate pumps in designed units to open and closed pipeline and tank valves and to gauge, sample and determine temperature of tank contents. Records operating data, such as products and quantities pumped, stocks used, gauging results and operating time. May

## NATIONAL CLASSIFICATION OF OCCUPATIONS

blend oil and gasoline. May repair pumps, lines and auxiliary equipment.

**8155.40 Control Man (Petroleum Refining)** operates control panel to regulate temperature, pressure, rate of flow, and tank level in petroleum refining, processing and treating units and petro-chemical units, according to process schedules. Observes instruments and meters to verify specified conditions and record readings. Moves and adjusts dials, switches, valves and levers on control panel to regulate and coordinate process variables, such as flows, temperatures, pressures, vacuum, time catalyst and chemicals as specified. Reports malfunctioning equipment to Still Man. Records results of laboratory analysis. May test products for chemical characteristics and colour, or send them to laboratory for analysis. May change recording charts and ink pens. May operate auxiliary equipment to assist in distilling or treating operations. May be designated according to type of process or unit in which employed such as **CONTROL MAN, CRACKING UNIT; CONTROL MAN, CRUDE UNIT; CONTROL MAN, POLYMERISATION UNIT; SOLVANT -TREATING -PLANT CONTROL MAN** etc.

**8155.50 Blender (Petroleum Refining)** controls equipment to blend straight run of natural gasoline with chemicals, tetra-ethyl leads, and light distillates of crude oil to produce commercial fuel, according to formula. Reads blending schedules specifying components and quantities to be blended. Turns, controls to open valves and starts pumps or directs Pump Man to transfer gasoline to blending tanks. Completes amount of addition or sets weighing machine that automatically weighs quantities of additives in ratio to quantity of gasoline. Turns hand wheel to open valves to spray jets to admit and circulate specified quantities of gasoline, additives and chemicals in mixing tanks. Move controls of pumps, agitators and mixtures to blend mixture mechanically or with air agitation. Observes temperature gauges and turns valves to regulate and maintain specified temperature in tanks. Draws sample of mixture for laboratory analysis. Repeats blending process as required by laboratory recommendations or starts pump to draw off

blended gasoline to storage tanks or leading racks. Opens valves to draw off chemical and lead residue. Records quantity blended and materials used. Lubricates, adjusts, and repairs pumps, agitators, and mixers. May test products. May operate control panel utilizing electronic computer and controls to blend products in pipelines. May be designated according to type of additive used as **ETHYL BLENDER**.

**8155.60 Paraffin - Plant Operator (Petroleum Refining)** operates filter presses to separate oil of paraffin distillate from paraffin wax. Installs filter plates using hand tools, and turns hand wheel to adjust hydraulic ram pressure. Turns valves to regulate flow of chilled distillate in to filter press. Starts machine to activate hydraulic rams to squeeze oil from distillate, as wax solidifies. Observes oil pressed from filter plates and adjust ram pressure to extracts maximum amount of oil from wax. Scraps accumulated wax from filter plate in to spiral conveyer that carries it to melting pan. Turns valve to regulate flow of steam in to melting pan to heat wax. . Start pumps to return salvaged distillate from tank to filter press for re-processing. May be designated according to phase of processing as **LEAKMAN, PARAFFIN PLANT; PRESSMAN, PARAFFIN PLANT**.

**8155.70 Pump-Station Operator;** operates electric, diesel, gas, or automated pumping equipment to pump and route petroleum products through pipelines at main-line or terminal stations according to instructions and destination: Turns valves and starts engines to pump oil through station. Reads flow and pressure meters, and turns valves to vary pumping rate and line pressure, according to specifications. Turns handwheel to open or close pipeline valves to direct flow of oil to storage tanks according to grade; to direct flow of oil through station and along pipeline, according to destination; or to switch oil to alternative pipelines to prevent contamination between grades. Inspects pumping equipment to detect malfunctioning and leaks. Lubricates machinery, and repairs and adjusts pumps and equipment, using handtools. Records pressures, temperature, and flow rates, and maintains records of oil stock and oil receipts. May pump natural gas or natural



## NATIONAL CLASSIFICATION OF OCCUPATIONS

gas liquid products. May gauge and test oil. May use radiotelephone equipment.

**8155.75 Treating-Plant Operator** controls continuous-treating or batch-treating equipment to process petroleum products, such as petroleum, kerosene, and lubricating oils, with chemicals, solvents, steam, clay, and hydrogen to remove impurities and to improve colour, odour, and stability, according to specifications: Moves and sets levers, switches, dials, and handwheels to admit products and treating agents to processing units in specified ratio; to direct flow of products through treating stages, such as mixing, precipitating, and neutralising; and to regulate temperatures, pressures, and circulation rates of treating equipment. Observes temperature gauges, pressure gauges, and flowmeters; records readings; and compiles operating records. Patrols unit to detect malfunctions and leaks. Opens bleeder valves to sample products and tests them for chemical characteristics, specific gravity, and colour, or sends sample to laboratory for analysis. Reprocesses products or pumps them to storage tanks, according to test results and laboratory recommendations. Opens valves to drain sludge from units. May repair and lubricate equipment. May treat products, using hydrogen-catalytic process.

**8155.90 Petroleum Refining Workers, Other** includes all other petroleum refining workers engaged in refining petroleum and their products, not elsewhere classified.

### **8158 SUPERVISORS AND FOREMEN, CHEMICAL PROCESSING PLANT OPERATORS AND RELATED WORKERS**

Supervisors and foremen, chemical processing plant operators and related workers supervise and guide workers engaged in petroleum refining and various chemical processing and related operations.

**8158.10 Supervisor and Foreman, Chemical Processing and Related Activities (Excepting Petroleum)** supervises and guides workers engaged in various chemical and related operations and ensures safety of workers and correct performance. Guides workers in setting and

operating machines and plants for chemical and related processes such as crushing, grinding, mixing, cooking, roasting, making solutions, precipitating, filtering, operating stills and reactors, etc., and ensures correct performance. Gets samples tested or conducts shop tests as prescribed, and directs necessary adjustments to get specified results. Arranges for men and material as required and ensures safety of plants and workers supervised. Ensures compliance with rules and regulations binding on chemical factories and takes appropriate emergency measures as necessary. Maintains records and registers and submits returns as prescribed. May set machines and plants, perform chemical and related tests and train workers in handling plants and equipment. May be designated according to section or work supervised. (Excluded are chemists and chemical engineers, described elsewhere).

**8158.20 Supervisor and Foreman, Petroleum Refining and Related Activities** supervises and guides workers engaged in processing and refining petroleum and its byproducts and ensures prescribed quality and standard of production. Guides workers in setting up, operation, temperature control and upkeep of various plants and equipment used in petroleum refining and manufacture of its byproducts by processes of fractional distillation, straining, filtering, atomisation (cracking of hydrocarbons) etc., and ensures prescribed quality and standard of production of petrol, lubricants, white grease, synthetic coal, bitumen and other original and by-products. Arranges for materials, gets samples tested, while processing and makes necessary adjustments according to test results. Ensures safety, upkeep and proper utilization and performance of all men, machines, plants and equipment supervised. Maintains records and registers and submits returns as prescribed. May test samples while processing and operate plants if necessary. May be designated according to section of work supervised. (Excluded are chemists and chemical engineers described elsewhere).

**8158.90 Supervisors and Foremen, Chemical Processing and Related Activities, Other** include all other

## NATIONAL CLASSIFICATION OF OCCUPATIONS

supervisors and foremen engaged in supervising manufacture and processing of chemicals and their by products in chemical factories, not elsewhere classified.

### **8159 CHEMICAL PROCESSING PLANT OPERATORS, n.e.c.**

This Family covers chemical processing plant operators not classified elsewhere in the Group 815, Chemical processing plant operators. For instance, in this Family those workers should be classified who are engaged in operating and monitoring machinery and equipment which treat chemical solutions with bleaching reagents, produce coke or gas from coal, extrude and form natural or synthetic polymers in to synthetic fibres, produce fertilisers, or extract and process radioactive materials.

**8159.10 Heater, Coke Oven** regulates beating of coke oven batteries and maintains maximum efficiency of combustion and heat consumption. Records reading of control room meters, such as pressure gauges, fuel supply gauges, thermocouple recorders, etc. Ensures proper functioning of cellar equipments, such as valves, cocks, reversion machine, etc. Checks fuel and wall temperature of heating chambers (oven) after each reversal of gas, by optical pyrometer. Checks walls of ovens for black patches, distribution pipe pressure, differential drafts, heating valves of fuel gasses, etc. Arranges for waste gas analysis. Maintains record of oven temperature. Supervises gas change over and cleaning of individual distribution pipes, orifices, nipple, etc. May also adjust draft and fuel gas governors.

**8159.12 Controlman, Coke Oven** records meter and gauge readings and controls pressure and draft in coke ovens. Watches readings of thermo-couple recorders, pressure gauges, governors etc., and reports irregularities to Heater. Arranges for gas reversion. Adjusts and maintains gas pressure and air draft after gas reversal. Checks working of chimney governors, foul gas governors and operates butterfly valves to prevent fluctuation of pressure inside coke oven battery. Checks deposition of tar in collecting main and arranges for its cleaning. Keeps in touch with blast furnace, coke oven gas holders, booster house and other

departments to maintain flow of correct volume and pressure of gas into coke ovens. Keeps record of all pressure, draft and volume readings. May instruct Gas Man for operating gas reversal clock. May manually operate butterfly valves, if there is no governor. May also arrange for cleaning spray nozzles and cocks for proper flow of gases.

**8159.14 Gasman, Coke Oven** operates gas reversal machine for reversion of gas for uniform combustion in coke oven. Sets coke oven and blast furnace isolating cocks according to instructions of Heater. Operates gas reversal machine at prescribed intervals and adjusts gas flow. Watches waste heat valve, air flap, and isolating cocks and reports irregularities to Controlman Coke Oven and Heater. Operates skip-hoist to lift split coal for reloading. May operate cellar pit pump and assist in checking pressure of distribution pipe and adjusting side and individual drafts. May also operate reversal machine manually in case of power failure.

**8159.16 Battery Tindal, Coke Oven; Coking Tindal, Coke Oven** regulates and maintains proper functioning of coke oven battery for manufacture of coke from coal. Watches oven condition by meters and indicators and directs charging of pulverized coal into oven. Supervises ramming (pushing out burning coke from oven) and quenching operations according to schedule. Checks and attends to 'burning' or 'gasing' oven doors, cleanliness of doors and frames, changing hole rings, and lids, lubrication of machines, door keys isolating valves and regulates flow of gas in liquor weirs (ascension caps and rings). May coach labourers in operating various machines of coke oven battery and arrange for necessary repairs to ovens.

**8159.18 Charging Lorry Driver, Coke Oven** charges coke oven from top with pulverized coal by electric lorry. Drives and places lorry below service bunker door. Opens service bunker door by hand-operated lever and receives pulverized coal in carriage hopper (metal container open at top, fitted to lorry). Drives lorry to oven to be charged, opens hopper bottom and empties pulverized coal into oven through oven charge hole.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Charges ovens in proper sequence as per time-schedule. Signals Ram Car Driver for leveling oven. May assist Oven Top Man in opening and closing charging holes.

**8159.20 Ram Car Driver, Coke Oven; Push Car Driver, Coke Oven** pushes electrically operated ram into oven to push burning coke to discharge gate of oven. Drives ram car (electric car driven on lines) in front of oven to be rammed. Operates switches and levers to push beam forward to open oven door, pushes forward ram carefully up to pre-determined length by electric switch to drive burning coke for discharging it into coke car. Withdraws ram and closes oven door. Levels charge in freshly charged oven by means of electrically operated leveler. May undertake minor repairs. May also adjust ram.

**8159.22 Guide Car Driver, Coke Oven; Door Extractor Driver, Coke Oven** drives door extractor machine to open coke-side door of ready oven for exit of burning coke. Receives, schedule of ovens to be pushed. Positions guide car (on coke side) in front of ready oven. Opens door by electro-mechanical devices, positions coke guide cage and signals to Ram Car Driver to ram oven and to Coke Car Driver to position his car for receiving burning coke. Scraps off insufficiently burnt coke while it is being pushed. Closes oven door after all burning coke has been pushed. May undertake minor running repairs.

**8159.24 Coke Car Driver, Coke Oven; Quenching Car Driver, Coke Oven** receives burning coke in electrically driven coke car, quenches it and deposits it at coke wharf. Positions coke car in front of guide cage on receipt of signal from Guide Car Driver. Manipulates movements of coke car to ensure that all burning coke from oven is uniformly loaded. Drives it slowly to showers to quench coke. Waits till water drains off. Drives car to coke wharf and operates coke car gates for depositing coke. May undertake running repairs.

**8159.25 Charcoal Burner, Beehive Kiln (Chemical)** operates series of beehive kilns to produce charcoal: Places kindling in kiln and starts fire. Seals top of kiln when specified heat is attained, using cement and

hand trowel. Observes colour of smoke as it issues through draft holes in kiln bottom to ensure burning of charcoal as specified. Opens and closes draft holes, using bricks, to regulate forming of charcoal. Seals draft holes and cracks in kiln with cement to smother fire when charcoal has been formed

**8159.26 Coke Drawer, Hand** performs any combination of following duties involved in emptying coke oven: Scrapes coke from coke oven, using iron rod (scraper). Forks coke onto conveyor that dumps coke in railroad cars. Picks foreign matter, such as slate and slag, from coke on conveyor. May fork coke into wheelbarrow and push wheelbarrow to railroad cars. May apply brakes or place car-stop to hold railroad cars under coke-pushing machine. May place firebrick doors in oven doorframe, using overhead hoist, to close oven. May seal doors of ovens, using firebricks and loam.

**8159.28 Producer Gas Plant Operator** operates producer gas plant for manufacture of producer gas from burning coal for metallurgical or other purposes. Ignites coal, opens valves and injects steam and air on red hot coal by blower. Watches frequently quality of gas produced. Removes ash by operating mechanical ash plough. Operates gas release valve and directs gas to gas main, for distribution to sections concerned or to gas chamber. Records readings of meters, thermo-coupled indicators and gauges to assess quality, quantity and pressure of gas. May also introduce gas into new furnace and inspect furnace glues.

**8159.30 Bleaching Operator, Chemical; Bleacher Operator Chemical** operates bleaching machine and treats chemical solution with bleaching reagents to improve their colour. Pumps liquids and chemical solutions to be bleached into tank; adds bleaching reagents and ingredients determined by formula by pumping or opening valves; starts agitator; observes and controls temperature and speed of agitator and regulates steam valves; continues bleaching for desired time till acceptable bleach product is obtained; samples bleached product and sends it to control laboratory to test and check for chemical specifications. Filters products with the help of filter press and takes filtered products into storage tanks

## NATIONAL CLASSIFICATION OF OCCUPATIONS

or to another department for further processing. Records weights of materials used and time required for bleaching. Maintains, oils, adjusts and makes minor repairs to equipment, implements safety measures in regard to operation of plant/machinery and in handling and processing materials.

**8159.34 Bale Cutter Operator, Rubber** cuts bales of crude rubber into small pieces by hand or hydraulic cutting press. Removes wired wooden wrapping or metal straps, using cutters covering from rubber bales and loads them on machine; pushes bale on bed of cutting machine and moves lever, actuating hydraulic ram that pushes bale against stationary knives or to lower knife or blades against rubber placed on platform of machine; pulls layers of smoked or crepe rubber apart by hand and completes operation; collects cut pieces, loads them in truck and moves truck to hot chamber for further processing; cleans, oils and lubricates machine and keeps work place neat and tidy.

**8159.36 Masticator, Rubber; Mixing Mill Operator(Rubber)** tends and operates plasticator machine that mangles and kneads chunks of raw rubber between two mill rollers to prepare raw rubber for compounding with other ingredients for further processing. Weighs specified amount of raw rubber chunks and dumps them into hopper of machine; turns steam and water valves to regulate heat of machine rollers, judges heat by touch; adjusts roll clearance for desired thickness of stock; starts machine and feeds stock through rollers to squeeze and knead material; pulls out warm stock in chunks at expiration of prescribed time or when visual examination shows material is satisfactorily milled; removes sheet rubber adhering to heated roll by cutting across it with knife and catching sheet as roll turns, or adjusting tension of scraper blade, that peels rubber from roll, by turning hand wheel; dips slabs in soap stone bath and hangs them for drying. Oils and cleans machine; keeps work surroundings neat and tidy. May manipulate controls of automatic feed delivery system.

**8159.38 Straining Operator (Rubber Reclaim); Strainer Man** screens out metal particles and other foreign objects from

processed rubber reclaim, using strainer. Opens chute on feed conveyors or shovels, scrap rubber into hopper of strainer, starts machine that forces rubber through strainer screen; regulates speed of machine and conveyors to prevent jamming of stock; feels strainer, and opens water valves to prevent over-heating of machine and scorching rubber; discharges strained scrap rubber to conveyors to transfer to refining mills or to hand trucks for transfer to storage; observes for colour and appearance and feels strained rubber to insure that foreign material is removed; replaces clogged and worn strainer screens, using hand tools. May tend magnetic device to facilitate removal of metal from rubber. May fill containers with screened rubber to specified weight and keep record of productions.

**8159.40 Mixer, Rubber** makes rubber compound by mixing crude rubber with other ingredients such as filters, antioxidants, plasticizers, activators, retarders, accelerators, sulphur etc., by operating a mixing mill. Sets machine by adjusting roll clearance for desired thickness of milled stock; turns water valves to regulate temperature of rolls; shovels batch of processed stock into feed hopper of mill; adds previously prepared liquid and solid pigment to aid plasticisation, using hand paddle; starts mill and observes continuous pressing of stock between rolls; pulls out warm stock in chunks at expiration of prescribed time or when visual examination shows material is satisfactorily milled; hangs rubber chunks on racks to cool; removes cool stock from rack and places them on storage skids, separating layers with soap stone; adjusts and controls roll gap if machine stops due to over feeding; stops machine when layer of rubber strip on roller is exhausted; oils and lubricates machine.

**8159.42 Solution and Dough Making Operator Rubber; Solution Maker; Rubber** dissolves rubber compound in solvent and then mixes it in solution mill. Pours required quantity of solvent in mill chamber; adds specified quantity of rubber compound into solvent in chamber of mill; starts machine; runs machine for specified period of time or until mixing process is completed; draws samples

## NATIONAL CLASSIFICATION OF OCCUPATIONS

to test solution for proper consistency; stops machine and drains solution from chamber.

**8159.45 Synthetic Fibre Maker** tends machine that forces specific liquid solution through fine holes into acid solidifying bath to form synthetic(chemical) textile filaments and winds them into untwisted threads. Starts machine and catches ends of filaments as they pass through acid bath. Brings several ends together, passes them over guide wheel and attaches them to spool, bobbin or similar winding device. Repeats process with other filaments. Ties thread together when it breaks and replaces. Fills winding devices with empty ones. May operate machine with centrifugal arrangement for drawing and piling thread into special boxes.

**8159.50 Chemical Process Operator (Radio-Active Materials)** controls laboratory equipment to prepare radioisotopes and other radioactive materials for use as tracers in biological, biochemical, and physiological and industrial research. Places specified amounts of chemicals to be irradiated into container, and secure vacuum pump head to outlet valve on container to replace air with inert gas. Drives pickup or forklift truck to transport container to nuclear reactor for irradiation and from reactor to processing area. Lifts container of irradiated material from truck using hoist and positions container over opening in concrete and lead cell. Moves remote control lever to open container and dump radioactive contents into glass tube in chamber of protective cell. Opens pneumatic valves or uses slave manipulators to add specified types and quantities of liquid reagents to glass vessel, dissolve and transfers radioactive samples into ion exchange tube, washes radioisotopes from side of ion exchange tube into collection vessel and transfers sample of glass flask, observing chemical reaction through periscope. Drains liquid into glass tube and performs standard chemical analysis involving titration and filtration, to ensure that radioisotopes conform to specifications. Places tube in metal container and crimps top to close container. Places container in carbon, encloses descriptive literature, and seals carbon. Compiles records including dates, production and related information. Decontaminates

glassware and other equipment during shut down using cloth and soapy water.

**8159.52 Hot-Cell Technician** operates remote-controlled equipment in hot cell to conduct metallurgical and chemical tests on radioactive materials: Controls slave manipulators from outside cell to remove metal or chemical materials from shielded containers inside hot cell and places on bench or equipment work station. Tests chemical or metallurgical properties of materials according to standardised procedures, and observes reaction through cell window. Sets up and operates machines to cut, lap, and polish test pieces, following blueprints, x-ray negatives, and sketches. Tests physical properties, using equipment, such as tensile tester, hardness tester, metallographic unit, micrometer, and gauges. Immerses test sample in chemical compound to prepare for testing. Places irradiated nuclear fuel materials in environmental chamber to test reaction to temperature changes. Records results of tests for further analysis by engineers, scientists, or customers. Places specimen in shielded container for removal from cell, using manipulators. Participates in cleaning and decontamination of cell during maintenance shutdown. May devise adapters and fixtures for use in hot cell operations.

**8159.54 Refining Machine Operator (Oils and Fats)** tends machine to refine crude oils such as, ground-nut pea-nut, soya-bean etc., for preservation or for making hydrogenated oil. Turns valve to pump oil and caustic solution from storage tanks into machine tanks as specified. Starts machine to separate caustic from oil by centrifugal force. Sets thermostat, observes gauges and regulates valves to maintain prescribed temperature in wash and dryer tanks. Turns valves to pump mixtures to wash and dryer tanks to remove by-products with water and impurities with heat. Turns valve to pump refined oil to storage tanks or for further processing. Cleans vessels, using water and steam. May be designated according to type of machine tended.

**8159.56 Hydrogenation Operator (Oils and Fats)** controls equipment to process base oils used in manufacture of margarine, vanaspati, etc., and shortening. Starts pumps

## NATIONAL CLASSIFICATION OF OCCUPATIONS

to move premeasured batches of refined oils or fats into converter vessel. Turns valves to adjust rate of flow of hydrogen, steam, air, and water into converter and weighs and adds specified amounts of catalytic agents and other chemicals to hardened batch of oils or fats, as required. Tests samples, of batch using refractometer to ensure that hardness of product is in accordance with specifications. Pumps harden oil through filter press to remove catalyst and attaches lines to transfer filtered oil to blending vessel. Starts pumps to add specified amounts of blending oils to blending vessel and turns valves, to heat and blend oils, for required period of time. Observes temperature and pressure gauges and turns valves to make adjustments when necessary. Pumps finished oils through filter press to holding tank. May be designated according to equipment controlled.

**8159.58 Deodorizer; Deodorizing Plant Operator (Oil and Fats)** tends distilling equipment to deodorize processed oils used in manufacture of margarine, vanaspati etc., and shortening. Turns valves to admit steam to heat oils to specified temperature, introduces and mixes nitrogen and create and maintains specified pressure and vacuum to remove fatty acids and gases from oil. Watches operation through inspection holes and ensures separation of fatty acids. Gets samples tested and finished oil transferred to filling section. May direct draining of fatty acids and residue for manufacture of by-products.

**8159.60 Crystallisation Attendant** removes mother liquor, syrup etc., from chemical solution and collects crystals formed. Operates valves to allow required quantity of heated liquor (chemical solution) to enter crystallisation tank. Starts stirrers in tank to agitate liquor. Admits cooling water to coils in tank, ensuring that liquor is cooled evenly and at controlled rate over fixed period of time. Stops machine when required state of crystallisation has been obtained, and drains off contents. May add crystals to induce crystallisation.

**8159.62 Tablet Machine Operator; Granulator Operator; Punch Machine Operator** sets, feeds, operates tablet coating machine and operates tablet-making machine

to compress powders into tablets of prescribed size, shape and weight. Sets machine; regulates the pressure by adjusting lever according to depth of tablets to be made; selects, fixes and adjusts die and punch of specified size and shape. Feeds and regulates flow of prescribed quantity of material into hopper of machine. Starts machine and sets die in motion for compressing powdered material into tablets; regulates valves to control flow of tablets through funnel; places empty container at delivery end of machine to receive pressed tablets. Test checks, at periodical intervals, weight of pressed tablets by weighing in balances. May deliver finished and pressed tablets at store for packing. May clean and maintain machine. May deliver finished and pressed tablets at store for packing. May clean and maintain machine. May operate tablet coating machine.

**8159.64 Tablet Coater; Pill Coater** coats compressed tablets or pills with syrup or other substance to preserve ingredients and make them palatable. Fills coating pot or pan of machine with tablets or pills. Pours measured quantity of syrup or other coating substance on tablets and starts pot revolving to coat tablets with syrup or coating substance. Operates machine to rotate pot for required time to ensure even coating. Checks that tablets are coated; adds powder that adheres to tablets polish surface of coated tablets by rotating them in wax-coated churn. May coat pills with powdered sugar, French chalk (pearl coating) or sulfur.

**8159.66 Washing Machine Operator, Ampoules** sets and operates washing machine to wash ampoules, vials, etc. to free them from bacteria. Washes vials and ampoules with soap, water and brush; again cleans vials and ampoules with water; fills glass carboil with distilled water and connects it with the washing machine by a rubber tube. Starts the air compressor and adjusts levers to maintain required pressure, releases the valve and finally washes and cleans vials and ampoules with distilled water. Removes cleaned vials into trays. May attend to their physical testing and packing.

**8159.68 Ampoule Filler; Vial Filler** fills ampoules (small glass vials) with doses of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

hypodermic solution. Inserts finely drawn end of glass burette (graduated tube) into opening of vial. Opens clamp on hose of turns stopcock on burette to release measured quantity of liquid, allowing ampoule to fill. Places filled ampoules in box, cover them to prevent dust contamination and sets them aside to be sealed. May seal ampoules.

**8159.70 Ampoule Sealer** seals ampoules (small vials) filled with hypodermic solutions. Holds tip of ampoule in flame of bunsen burner until glass melts; squeezes and pulls melted tip with tweezers; and removes glass from flame; and snaps off threadlike projection. Places sealed ampoules in rack ready for sterilizing and packing. May fill ampoules.

**8159.72 MB Tester; Mythelene Blue Tester** tests tightness of sealed ampoules by immersing them in Mythelene blue solution. Places trays with filled ampoules and Mythelene blue solution in vacuum chamber solution; operates valves to create vacuum and allows trays to remain in chamber for specified period. Removes and washes ampoules in clean water; examines and rejects ampoules containing blue solution;

**8159.74 Optical Examiner, Ampoules** examines filled ampoules for clarity of solution. Holds ampoules against light; examines them visually for dirt and impurities and rejects defective ampoules. May fill and seal ampoules.

**8159.76 Acid Plant Operator** maintains and operates acid plant for manufacturing sulphuric, hydrochloric, nitric or other acids by treating raw materials (sulphur, salts, etc.) with acid or steam. Collects required amount of raw materials for preparation of desired acid. Sets up and checks equipment, valves, gauges and other instruments; charges vessel with predetermined amount of chemicals, or regulates feed of materials into equipment; controls temperature in vessel by adjusting steam pressure; checks progress of process by looking through peep holes, observing temperature readings, pressure gauges and other instruments and making simple chemical tests; regulates material feed and heating or cooling devices, as necessary; removes acid when process is

completed. May keep records. May be designated according to product or process, e.g. **SULPHURIC ACID PLANT OPERATOR; HYDROCHLORIC ACID PLANT OPERATOR; FERTILISER MAKER; PHOSPHORUS MAKER.**

**8159.78 Sulphur Burner** melts sulphur in tanks by steam to make molten sulphur or sulphur gas for making sulphuric acid. Charges furnace with sulphur; regulates gas burners to adjust temperature; adjusts valves to pass air over vaporised sulphur and form sulphur dioxide. Pumps water over baffle plates in furnace, gas being absorbed by water to form sulphuric acid. Pumps acid into storage tanks. May melt sulphur in tanks containing steam heated coils and load furnace with molten sulphur. May make periodic titration to determine concentration of gas in water.

**8159.79 Mechanic Maintenance (Chemical Plant);** repairs and overhauls chemical plant, machinery and equipment periodically and on break downs to maintain them in efficient operating condition. Studies methods of processing of raw material to finish products. Examines plant and equipment to locate faults and removes minor defects on spot. Reports major defects and break downs to Chemical Engineer and dismantles, defective unit as directed with necessary precaution, using hand tools, adoper, twists etc, as necessary. Replaces or repairs defective parts and components by remetalling, filling, drilling, grinding scraping, soldering, berazing, etc. as required and reassembles unit according to specifications with prescribed precautions particularly for explosive, gas acid and other chemical plants, ensuring correct alignment clearance, valve operations, adjustments, flow of material operational functions and other necessary details. Tests assembled unit for proper performance, makes further adjustments, if necessary and gets assembled if examined by appropriate authority before handing over to production. Checks, adjusts and lubricates equipment periodically or gets it done and performs other tasks to maintain plant in proper working order. May maintain records of parts examined, repairs done, replacements made and plant performance. May erect and install equipment under guidance of chemical engineer.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8159.80 Acid Concentrator** maintains and operates equipment to concentrate or purify liquid chemicals. Charges retort with liquid to be processed; adjusts temperature control valves to heat and vaporise liquid; skims waste material from surface of liquid in retort; feeds vaporized liquid through condensers to condense it; if concentrating chemical, occasionally tests specific gravity of liquid in retort. Observes gauges, records readings and makes any needed operating changes. Inspects and makes minor repairs to piping, pumps, blowers and condensers; installs clean burners in furnace.

**8159.82 Acid Worker, Other** performs various operations such as charging containers with materials, controlling temperature, regulating movement of products, reading gauges, operating valves and controls, emptying containers, etc. under supervision of foreman or works chemist. May keep records. May be designated according to duties or product, e.g. **ACID LOADER; ACID PUMPMAN; STILLMAN; DISTILLER; SOLVENT RECOVERY OPERATOR; BRINEMAN, POTASH.**

**8159.84 Cell Room Attendant Chemical** tends electrolytic cells used in manufacture of caustic soda and chlorine. Inspects cells to ascertain that liquid levels, brine flows, cell pressure and current as indicated by manometers, sight glasses, flowmeters and automatic recorders are maintained. Replaces any damaged tubing and washes cell surfaces with water or acid to clean them. Measures specific gravity of caustic soda solution produced by cell group, using hydrometer or by calorimetric titration and adjusts cell operation accordingly. May be designated according to type of cell tended, as **HOOKER-CELL ATTENDANT, MERCURY- CELL ATTENDANT, GIBBS-CELL ATTENDANT.**

**8159.86 Gas Storage Attendant** operates pumps and equipment to store gas. Maintains constant pressure in gas storage tank and compensates for withdrawal of gas by commercial users by observing pressure gauges on tank and pumping replacement quantities into tank as needed. Observes pressure gauges on storage tank to determine need for increasing or decreasing pressure,

opens valves in gas-lines, and permits gas to flow into and out of pumps. Adjusts valves on gas or steam engines or throws electric switch to control appropriate high or low-pressure pumps in achieving desired pressure. Reads gas meters and records amount of gas received and dispensed from holders. Adjusts and lubricates pumps and prime movers. May adjust governors ,to maintain desired pressure.

**8159.87 Soap Machine Attendant** tends automatic machine for cutting, chipping or rolling of soap. Sets up machine and tightens steel cutting wires on frame. Pushes slab of soap directly into machine cradle; starts motor to force wires through slab to cut individual bars or chip into numerous pieces. May operate handpowered winch to draw cutting wires through soap slab. Maybe designated as **SLABBING ATTENDANT; MILLING ATTENDANT; CHIPPING ATTENDANT; PLODDING ATTENDANT; CUTTING ATTENDANT or STAMPING MACHINE ATTENDANT** according to nature of duties performed.

**8159.88 Extraction Attendant; Chemical, Extraction Operator; Extractor Battery Attendant; Kettle Operator; Percolation Attendant; Acidification Operator** boils necessary ingredients in kettles, vats, pans, and regulates temperature, pressure etc. as directed by Processman, Chemical, to effect desired chemical reaction. Collects different ingredients in required proportions and feeds them into pan separately or together, according to specification, adding required amount of fluids and other liquids, mixing them by stirrer. Switches on plant, injecting steam to boil and mix ingredients; observes temperature, pressure gauges, timings and other instruments, making adjustments, where necessary, to ensure process is complete. Collects samples for observation and test; drains stuff for storage; cleans pan and work place. Implements safety measures in regard to operation of plant/machinery and in handling and processing materials, oils and maintains machinery. May tend open or woodfire pan. May be designated according to type of pan or industry associated with.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8159.90 Chemical and Related Process**

**Workers, Other** not elsewhere classified, such as;

**Pansideman** runs oils and caustic solution into steam heated boiling pan in hot-process in manufacture of soap.

**Plodderer** operates machine in which toilet soap is extruded to rough shape and cut to length.

**Calender Rolls Operator** operates heated two-roll mixer, or three (or more) roll calender for production of "hides" or "doughs" from which plastic sheet is made.

**Coal-Gas Maker** operates one or more retorts for production of gas from coal.

**Oven Top Man** removes and fixes lids of coke oven, as required.

**Doorman Cokeoven** fixes and cleans coke oven doors.

**816 POWER PRODUCTION AND RELATED PLANT OPERATORS**

Power production and related plant operators operate and monitor machinery and equipment in an electrical power generating plant, and water treatment, incinerator and related plant, and operate and maintain ships' and other types of steam engines, as well as boilers.

**8161 POWER PRODUCTION PLANT OPERATORS**

Power production plant operators operate and monitor machinery and equipment, which produce electric or other power and control its distribution.

**8161.10 Stationary Engine Driver, Steam; Stationary Engine Operator Steam; Steam Engine Driver** operates stationary steam engine to provide motive power for other equipment and plants. Checks and adjusts controls and starts engine; observes gauges and meters to ascertain running order of engine and makes further adjustments, if necessary; maintains water supply and steam pressure to required level, lubricates working parts, tightens loose parts and performs other servicing tasks to keep engine in running

order. May make minor repairs. May check and direct working of boiler.

**8161.20 Stationary Engine Driver, Internal Combustion; I.C. (Internal Combustion) Engine Driver; Stationary Engine Operator, Internal Combustion** operates and maintains internal combustion engine run on petrol or diesel oil or gas to generate motive power to drive other equipment and plants. Checks oil level in engine tank by inserting graduated metal rod; turns fuel valve to admit oil to cylinder and starts engine; observes meters and gauges to determine operating condition and makes adjustments or minor repairs to ensure efficient performance; maintains supply of fuel, lubricates working parts, tightens loose parts and performs other servicing tasks to keep engine in good running order. May fit belt to wheel of engine to run other attached equipment and machinery. May be designated as **DIESEL/GAS/PETROL/OIL ENGINE DRIVER** according to type of fuel used.

**8161.30 Turbine Operator, Steam; Turbogenerator Operator, Steam** operates steam powered turbine which drives generators for producing electricity. Starts turbine by opening valve for supply of steam into turbine to rotate turbine wheels; runs turbine at low speed for pre-determined length of time and notifies switch-board operator when ready to run turbine at full working speed; increases speed of turbine and ensures that automatic regulator maintains correct working speed; notifies switch-board operator that turbine can be synchronised with other power units in plant. Observes gauges and meters to ensure proper handling of load by turbine and its proper functioning; alters power output of turbine and makes other adjustments as necessary. Cuts out unit evaporator to conduct blow down of turbine for periodic overhauling. May keep records of instrument readings. May repair and overhaul equipment and other auxiliaries.

**8161.40 Turbine Operator, Hydel** operates water-powered turbine which drives generators for producing electricity. Starts turbine by opening valves of pen-stock pipes to supply water to move turbine wheels; regulates flow of water into turbine to run it at required speed; checks operation of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

turbine for smooth and steady production of electricity by generators; controls water pressure in turbine, and safeguards against water leakage; ensures adequate cooling of turbine bearing by steady and continuous circulation of oil; observes gauges and meters to ascertain whether turbine can handle load and if working efficiently; checks for any abnormal sounds or movements of turbines. Alters power output of turbine and makes other adjustments, as necessary. May keep records of instrument readings at regular intervals. May repair and overhaul turbines, when required.

**8161.45 Power-Plant Operator** operates boilers, turbines, generators, and auxiliary equipment at generating plant to produce electricity: Monitors control board and regulates equipment, according to procedures and information obtained from recording and indicating instruments. Adjusts controls of water and cold feed systems, blowers, and igniters to start up or shut down boilers. Controls operation of boiler auxiliary equipment, such as water and vacuum pumps, coal driers and pulverizers, steam condensers, and soot blowers, to ensure efficient operation of boilers. Adjusts boiler controls to provide steam at specified temperature and pressure for turbine loads according to power demands. Adjusts controls to regulate speed, voltage, and phase of incoming turbines to coincide with voltage and phase of power being generated. Synchronizes incoming generating units with units in operation and closes circuit breaker at exact instant of coincidence. Monitors gauges to determine effect of generator load on related equipment, such as bus bars and voltage regulators. Adjusts transformer controls to regulate flow of power between generating stations and substations. Operates switchgear to regulate and transfer power loads to protect maintenance workers engaged in repairing or cleaning equipment. Records malfunctions of equipment, instruments, or controls on logsheet.

**8161.50 Electrical Switch Board Operator; Switch Board Assistant; Switch Board Attendant; Sub-Station Attendant (Power Station)** operates and attends switches and switch-gear on switch boards to regulate flow of electric current from

power house or sub-station to different feeding units. Synchronizes generators and motor connectors to busbar (conductor forming common junction between two or more electrical circuits) receiving electrical current from other generating units by operating switches on panel board. Operates various controls to switch on and off current supply to different feeder units depending on load-requirements and as per instructions of superiors. Controls and regulates voltage, frequency and power factor according to demand and system condition. Disconnects generator from busbar to decrease power output or to cut out faulty units and equalises load among remaining operating generators. Maintains records of switching operations and generator output at regular intervals and submits daily reports to superiors. Reports to superiors of major breakdown, power failure and malfunctioning of switch board equipment, instrument or relays. Isolates feeding units in case of break-down and fixes danger notices. May clean panel board periodically. May overhaul and repair panel equipments. May supervise working and cleaning of static or rotary electrical plants. May check voltage and specific gravity of stand by storage batteries, maintain them and keep them fully charged.

**8161.60 Oiler and Greaser, Stationary Engines and Machinery** cleans and lubricates moving parts or wearing surfaces of stationary engines or machinery. Fills oil cans, grease-guns with required type of lubricant; injects or pours lubricant on moving parts or into holes, oilcups, or reservoirs according to lubricating charts, instructional records or own judgement and knowledge of engine or machine to be lubricated; adjusts feed of oil from cups or reservoirs so that proper quantity reaches moving parts. Forces grease into bearings with grease guns or packs grease cups by hand and screws down cup to force grease to moving parts. Forces oil or smears grease on friction surfaces such as driving chains and guides. Keeps sumps (oil reservoir) for lubricating systems filled with oil. Cleans machine and equipment. May make minor adjustments, tighten loose parts and assist machine operator or repairman. May keep records of tasks performed.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8161.65 Nuclear Plant Control Operator;** controls nuclear reactor that produces steam for generation of electric power and coordinates operation of auxiliary equipment: Adjusts controls, under supervision, to start and shut down reactor and to regulate flux level, reactor period, coolant temperature, and rate of flow, control rod positions, and other control elements that affect power level within reactor, following standard instructions and prescribed practices. Dispatches orders and instructions to plant personnel through radiotelephone or intercommunication system to coordinate operation of such auxiliary equipment as pumps, compressors, switchgears, and water-treatment systems. May assist in preparing, transferring, loading, and unloading nuclear fuel elements. May control dual purpose reactors that produce plutonium and steam. May control operation of auxiliary equipment, such as turbines and generators.

**8161.70 Breaker Tender; Breaker, Pit Attendant** Tends machine that breaks coal into lumps of specified size preparatory to pulverizing. Starts steel drum containing coal to revolve causing coal to break as it tumbles and to pass through perforations in drum; starts conveyors to transfer coal to and from breaker; observes flow of material on belt to detect and remove foreign material to clean jams; removes metal from pocket of magnet separator; lubricates breaker with grease gun and oil can. Cleans work area using shovel and broom. May assist with repair work.

**8161.72 Hopper Attendant** operates stationary or mobile hoppers mechanically by controlling valves or other devices to feed material into bins, kilns, furnaces, crushers, mines, etc. or for carry by conveyors or elevators-for further operations or filling. Operates machine by manipulating levers and switches to start hoppers for collecting materials and emptying them. Ensures that crushed material such as quartz, lime from crusher machine is dropped into pit for conveying by hoppers, belt screw crushed material and emptying it into storage bin or tank for further processing. Regulates speed or movement of hopper by control of lever or valve to carry correct quantity of material into kilns, furnaces, bin, tank etc. as necessary. Keeps place clean and tidy. May

operate crusher machine. May replace or repair broken hopper buckets or baskets.

**8161.80 Load Dispatcher** coordinates activities of personnel engaged in operating generating stations, substations, and lines of electric power system or electrified railway system to ensure adequate production and distribution of electricity to meet power demands: In smaller system, calculates load estimates according to corrected weather and consumer-demand of electric power required to meet fluctuating demands; or in larger systems receives load schedule for various generating stations. Monitors control board showing operating condition of lines and equipment throughout system and make adjustments or direct workers to make adjustments as conditions warrant. Notifies maintenance crew of location and deenergisation of troubled sector, and verifies that workers are clear of repaired equipment before directing energisation of circuit. Contacts other utilities by telephone to arrange exchange of power according to existing contracts or in emergency and coordinates tie-in with other systems. Compiles operational records. May operate console of computer, which is programmed to automatically perform load-control functions. May calculate discharge rate of water in reservoirs utilising reports of rain, river flow, and water level in reservoirs, and directs setting of watergates at hydroelectric plant to coordinate water flow and power generation with irrigation and flood control requirements.

**8162 STEAM ENGINE AND BOILER OPERATORS**

Steam engine and boiler operators operate and monitor steam engines and boilers on land and at sea.

**8162.10 Boiler Tindal; Head Boiler Attendant** sets automatic draught controls, guides feeding of fuel in hopper, pumping of water and all other operations in boiler house. Checks visually and by reading meters steam load and pressure, condition of combustion in furnace, quality of fire and water feed system etc. Ensures that water level indicators are in working condition. Ascertain draught (air supply to fuel) and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

exhaust requirements to boilers, making necessary manual and mechanical adjustments for control and regulation. Ensures that adequate fuel is stored, exhaust temperature of flue gas (the gaseous products of combustion from boiler furnace and water vapour) remains within specified limits, feeders are uniformly filled with fuel and that all fuel is completely burnt. Checks ash contents visually or by chemical analysis or by reading carbon dioxide recorder. Ensures continuous and proper working of ash disposal system and cleaning of boiler tube ways. Conducts general supervision of other operations in boiler house to meet load demand on plant. May handle equipments in emergency.

**8162.20 Boiler Attendant** operates boilers to generate steam of required pressure by controlling and adjusting water feed, draught, evaporation, fire, etc., for heat or power. Opens water-pipe valve in tank through glass tube attached to it and closes water-pipe when boiler tank is filled with water to required level. Ensures that water level in indicator is always above minimum limit. Opens door of fire chamber of boiler, shovels fuel into fire box and rakes fire to obtain maximum heat or sets device which feeds gas, oil or other fuel automatically. Checks temperature and pressure of steam by reading gauges and feeds fuel or adjusts stoking accordingly. Operates different supply valves and ensures that steam is supplied to engine room at prescribed pressure. Controls air draught into boiler ensuring correct adjustment of air supply and preventing infiltration of extraneous air. Maintains water level and steam pressure as prescribed. Drains out excess water from drum by blowing down according to instructions or in presence of shift-in-charge. Undertakes cleaning of boiler tubeways and minor repairs, maintains general external cleanliness, lubricates mechanical parts of boiler and assists in commissioning, banking (reducing the rate of combustion in boiler furnace by covering fire with slack or fire coal) and shutting down boilers. Maintains prescribed records of readings in log book. May cut off automatic water feed and make direct connection to drum and blow off excess water in case of emergency. May remove ash from ash pan or slag from slaf chamber. May clean boiler and flues. May

operate boilers with different fuels such as gas, oils, coal and be designated accordingly.

**8162.30 Boiler Fireman; Fireman, Steam** shovels coal into boiler to generate steam of required pressure. Lights boiler by throwing lighted cotton waste into boiler furnace and supplying air into chamber for easy combustion of coal. Shovels coal into fire chamber of boiler and spreads it evenly on surface for maximum combustion and utilisation of heat to generate steam. Pokes or rakes burning coal with metal rod to drop burnt cinder and ash on floor and to break lumps of coal to ensure maximum use of coal in chamber and maintain uniform heat. Ensures that water supply to boiler is constant and at prescribed level. Checks temperature and pressure of steam by reading gauges and adjusts steam pressure by regulating feed of coal and water to boiler. Lubricates moving parts. Maintains record of supply of coal to boiler etc. May collect, carry and dump ash at control point. May use bagasse instead of coal specially in sugar factories. May clean water tubes and dismantle boiler for repairs.

**8162.40 Boiler House Operatives** perform number of routine and low skilled tasks in operating boilers such as breaking coal to required size by hand, picking out shells and stones from coal, looking after automatic disposal of ash from boiler hopper and removing ash and cinder discharge from boiler, cleaning and scrapping off scales from boiler, operating and undertaking maintenance of boiler feed pumps, operating boiler draught fans, operating conveyors for supply of coal to storage bunkers of boilers, looking after performance of deaerator in order to remove dissolved gases from boiler feed water etc., and are designated as Coal Trimmer, Ash Mazdoor, Ash Khalasi, Boiler Khalasi, Coal Conveyor Attendant etc., according to nature of work performed.

**8162.50 Serang, Engine Room** controls and directs work of engine room crew on board ship. Allocates duties to engine room crew; and ensures that engine room, floor plates and paint work have been properly cleaned, and spares are properly greased and stored; supervises work of Tindal, Engine Room; Stoker, Ship; assists ships' engineers in maintenance work and supervises cleaning

## NATIONAL CLASSIFICATION OF OCCUPATIONS

of boilers, washing of tank tops, chipping and scrapping in engine-room etc.; maintains discipline amongst engine room crew. May perform duties of Tindal or Stoker in emergency or when required.

**8162.60 Tindal, Engine Room** supervises work of engineroom crew under instructions from Serang, Engine-room. Assists ships' engineers in looking after satisfactory functioning of boilers; stands watch in engine-room, supervises firing of boilers and sees that water level of boilers is maintained correctly. May work with engine-room crew in cleaning boilers, paintings, chipping etc.; may assist engineers in overhauling and maintenance of machinery, engines and boilers; may perform duties of Serang in his absence.

**8162.70 Stoker, Ship; Fireman Ship** fires or stokes coal fired or oil fired boilers on ship to maintain required steam pressure in boiler. Shovels coal into furnace to make it blaze; maintains level of water and required steam pressure; controls valves regulating oil flow and air blast; cleans burners and furnace in oil-fired boiler; removes ashes from fire-box of coal-fire boiler; ensures correct temperature and pressure; assists Tindal in looking after satisfactory functioning of boilers. May assist ships' engineers in maintenance work and carry out chipping, sealing, cleaning and painting.

**8162.75 Fireman, Locomotive; Fireman, Railway Engine (Steam)** fires and operates steam locomotive boiler by stocking coal into it to maintain required steam pressure. Checks safety plugs of fire-box, moving parts of engine and supply of water and coal before commencement of journey. Stokes coal judiciously into firebox of boiler to maintain constant fire for generating steam and keeps coal consumption within prescribed limits. Assists Engine Driver in observing signals and other instructions. Oils and cleans engine parts, fills water tank enroute with water at water columns and maintains required water level in boiler. Ensures correct operation of Engine lubricator and raking of fire at waiting stations when engine takes water. Is designated as FIRST FIREMAN or SECOND FIREMAN according to degree of responsibilities and tasks performed and

as FIREMAN LOCOSHED if engaged in storing prescribed quantity of coal, water etc., in engine and preparing it for journey by firing boiler to required steam pressure.

**8162.90 Ships' Engine Room Ratings, Other** include all other Ratings engaged in various operations in ship's engine room, not elsewhere classified.

### 8163 INCINERATOR, WATER TREATMENT AND RELATED PLANT OPERATORS

Incinerator, water treatment and related plant operators operate and monitor various types of plant, such as incinerator, water treatment plant, air and gas compressors, pumping stations, refrigeration or heating and ventilation systems.

**8163.10 Ice Maker** tends refrigerating equipment that freezes water into ice, performing any combination of following tasks: Opens valves to fill containers with specified amounts of water, and lowers containers into freezing tanks, using hoist. Inserts air bubbler into containers and starts agitator in freezing tank to ensure uniform freezing. Siphons or pumps water containing foreign matter from centers of partially frozen ice blocks, using suction pump, and refills container with fresh water. Flushes surfaces of ice blocks with hose. Removes container from tank, using hoist, and immerses it in warm water or places it in steam bath to free ice from container sides. Positions cans on dumping pivot and pushes buttons to tilt pivot and dump ice onto conveyor or platform. Adds prescribed amounts of materials into mixing vats and starts agitator to mix brine solution for freezing tanks. May turn valves to regulate compressors and condensers.

**8163.20 Reservoir Caretaker** controls equipment to regulate waterflow and water level in reservoirs: Turns valves and pulls levers to regulate waterflow through aqueduct and floodgates. Reads gauges and meters to control specified waterflow, water levels, and water pressure in reservoir. Records data, such as water level, turbidity, temperature, and flow rate. Lubricates and performs minor repairs to equipment, using handtools. Patrols area to detect property

## NATIONAL CLASSIFICATION OF OCCUPATIONS

damage and to prevent trespassing. May tend heating apparatus to prevent freezing of valves and gates. May add chemicals to water to retard organic growth such as algae.

### **8163.30 Gas-Compressor Operator**

operates steam or internal combustion engines to transmit, compress, or recover gases, such as butane, nitrogen, hydrogen, and natural gas in various production processes: Moves controls and turns valves to start compressor engines, pumps, and auxiliary equipment. Monitors meters, gauges, and recording instrument charts to ensure specified temperature, pressure, and flow of gas through system. Observes operation of equipment to detect malfunctions. Records instrument readings and operational changes in operating log. May operate purification tanks to purify air or byproduct gases. May tend pumps to mix specified amounts of acids and caustics with water for use in purifying gases. May perform minor repairs on equipment, using handtools. May conduct chemical tests to determine sulfur or moisture content in gas.

### **8163.40 Wastewater Treatment Plant Operator**

operates sewage treatment, sludge processing, and disposal equipment in wastewater (sewage) treatment plant to control flow and processing of sewage: Monitors control panels and adjusts valves and gates manually or by remote control to regulate flow of sewage. Observes variations in operating conditions and interprets meter and gauge readings and tests results to determine load requirements. Starts and stops pumps, engines, and generators to control flow of raw sewage through filtering, settling, aeration, and sludge digestion processes. Maintains log of operations and records meter and gauge readings. Gives directions to **SEWAGE-DISPOSAL WORKERS** in performing routine operations and maintenance. May collect sewage sample, using dipper or bottle and conduct laboratory tests, using testing equipment, such as colorimeter. May operate and maintain power generating equipment to provide steam and electricity for plant.

### **8163.50 Heating-Plant Superintendent**

supervises and coordinates activities of workers engaged in producing and distributing steam, heat and hot water in

commercial or industrial establishments, and in maintaining mechanical equipment, such as boilers, pipe systems, pump, hot water generators, hot air furnaces, and air-cooling units.

### **8163.60 Pump Station Operator, Waterworks**

operates pumping equipment to transfer raw water to treatment plant, or distribute processed water to residential, commercial, and industrial establishments: Turns valves, pulls levers, and flips switches to operate and control turbine- or motor-driven pumps that transfer water from reservoir to treatment plant, or to transfer processed water to consumer establishments. Reads flow meters and gauges to regulate equipment according to water consumption and demand. Inspects equipment to detect malfunctions, such as pump leaks or worn bearings. Repairs and lubricates equipment, using hand tools. Records data, such as utilization of equipment, power consumption, and water output in log. May operate equipment to treat and process raw water. May test water for chlorine content, alkalinity, acidity, or turbidity.

## **8168 SUPERVISORS AND FOREMEN, POWER PRODUCTION AND RELATED PLANT OPERATORS**

Supervisors and Foremen, power production and related plant operators supervise performance and operation of boilers, stationary engines and related equipment and ensure their proper upkeep.

### **8168.10 Boiler Supervisor**

supervises performance and operation of coal, gas or oil fired boilers and ensures their proper functioning. Checks gauge and meter readings, setting of automatic draught control, feeding of fuel in hopper, water feed system, steam pressure, etc., in boiler house before starting boilers. Ensures proper combustion of fuel, required flue gas temperature and maintenance of prescribed steam pressure. Checks ash contents either visually or by chemical analysis and ensures continuous and proper working of ash disposal system, cleaning of tubeways and maintenance of boilers and equipment in perfect working order. Adopts precautionary measures in case of emergencies to avoid accidents. Maintains boiler house log book

## NATIONAL CLASSIFICATION OF OCCUPATIONS

and devises methods to improve efficiency. Gets boilers ready for inspection by Boiler Inspector as scheduled. May conduct minor repairs himself.

**8168.20 Supervisor and Foreman, Stationary Engine and Related Equipment** supervises performance and operation of stationary engines and related equipment and ensures their proper upkeep. Checks stationary engines and mechanical equipment under charge such as steam engines, air compressors, vacuum and centrifugal pumps, turbines, etc., for operational efficiency, output and other factors and assess their working condition at beginning of shift. Instructs workers to operate engines and equipment according to their respective working condition and observes their performance by reading meters and gauges as well as by sight and sound. Directs stopping of malfunctioning engines, arranges for their repairs and distributes load on other units as required, within specified safety limits. Supervises performance of workers operating them and ensures their proper working, and daily maintenance like oiling, greasing, etc. Arranges for periodical repairs and overhauling as scheduled and maintains prescribed records and registers. May conduct running repairs in case of emergency. May specialise in any particular branch of engine or type of work.

### **8169 INCINERATOR, WATER TREATMENT AND RELATED PLANT OPERATORS, n.e.c.**

This Family covers workers engaged in activities of incineration, water treatment and related operations not classified elsewhere in Group 816.

**8169.10 Air Compressor Operator; Compressor Driver** Operates and services power-driven air-compressor which generates and supplies compressed air to drive pneumatic tools, hoists and other mechanical equipment. Starts power unit and builds up required pressure; manipulates controls or sets automatic regulator to maintain correct supply of air to equipment; observes pressure, temperature and other gauges and makes further adjustments to

controls as necessary; cleans and oils equipment, tightens loose parts and performs other servicing tasks to keep compressor in good running order. May connect pipelines from compressor to various equipment and make minor repairs. May operate mechanically or electrically driven compressor. May be designated as **AIR COMPRESSOR OPERATOR STEAM; AIR COMPRESSOR OPERATOR, DIESEL** etc. according to power used.

**8169.20 Ammonia Compressor Attendant** operates ammonia compressor and auxiliary unit for making ice by freezing water. Examines thermometers, pressure gauges and other instruments to ascertain working condition of plant, operates switches, thermostats and other controls to maintain desired temperatures; opens, closes and adjusts hand valves, associated with compressor and condenser, to control rate of suction and discharge of ammonia temperature, determining proper valve setting by observation of pressure and temperature gauges and knowledge of pressure and temperature required for efficient operation; ensures proper covering of freezing tank of plant with saw dust, and proper circulation of brine solution around tank; measures specific gravity of brine (saltwater) periodically; lowers cans containing water into freezing tank and covers lid; removes cans from freezing tank after ice is formed; separates ice blocks from cans after little thawing. Maintains prescribed records of meter readings, cleans equipment, and performs other tasks to keep system in good running order. May repair and overhaul plant. May adjust specific gravity by adding water, salt, or calcium chloride to solution.

**8169.30 Air-Conditioning and Refrigeration Plant Attendant; Refrigeration System Operator** operates air-conditioning or refrigeration system for preserving food, providing cooling or warming media for industrial processes, cooling or warming buildings, or for other purposes. Manipulates various switches, at central control board to start and stop electric motors, pumps, compressors, coolers and other related equipment of refrigeration and air-conditioning system; observes readings in various meters, gauges and instruments

## NATIONAL CLASSIFICATION OF OCCUPATIONS

regarding temperature, pressure and voltage of system to ascertain working condition of plant; operates switches, thermostats, rheostats and other controls to maintain desired level of temperature; cleans and resets generator brushes, replaces burned fuses and defective devices, thaws frozen valves, cleans equipment and performs other tasks such as oiling, greasing, cleaning of air and water filters etc. to keep system in good running order. May keep records of temperatures produced. May assist Refrigeration Mechanic in dismantling equipment for repairs.

**8169.40 Pumpman; Pump Operator; Pump House Attendant; Pump Driver;** operates one or more power-driven machines for pumping, storing and supplying liquids or other fluid materials or for dewatering purposes. Starts pump, observes its operation and adjusts controls to maintain correct rate of pumping; stops pump when required quantity of fluid has been moved; cleans, oils and greases pump, tightens loose parts and performs other servicing tasks to keep pump and equipment in good running order and safe condition. May do minor repairs. May connect pipe lines from pump to vessel to be filled or emptied. May be designated according to type of pump operated or type of material (fluid) pumped, as **PUMP OPERATOR, STEAM; PUMP OPERATOR, DIESEL; PUMP OPERATOR (ELECTRIC); TUBE WELL OPERATOR.**

**8169.50 Exhaust Fan Operator; Ventilating Equipment Operator** operates power-driven motors, fans and related equipment to control ventilating system in mines, factories, stores and other establishments to remove foul air and gases from enclosed atmosphere. Inspects fans, motors and other parts of ventilating system; lubricates moving parts of equipment by filling cups with grease or oil; regulates speed of fans and adjusts dampers in ventilating ducts to control flow of air; makes minor repairs to equipment performing duties, such as tightening nuts, bolts and loose parts, replacing old or worn parts in thermostats, cleaning or replacing motor brushes. Assists Electrician or Electrical Fitter in dismantling fans and motors for repairs. May maintain air-

cooling, air-conditioning, or air purification equipment. May be designated as **FAN OPERATOR, CENTRAL HEATING; HEATING EQUIPMENT OPERATOR** if operating central heating system.

**8169.60 Blower Operator** operates electrically driven blower for supplying air blast for converters, cupolas and blast furnaces. Starts blower and manipulates controls to maintain correct supply of air to furnace; observes further adjustments to controls, as necessary; checks pressure and increases or decreases it, as necessary, by changing engine speed; opens and closes duct chamber to regulate flow of air into different chambers of premises. Cleans and oils motors periodically. Many repair air ducts or tubes.

**8169.65 Incinerator Operator; Furnaceman, Refuse Disposal** controls equipment to burn garbage, refuse and sludge cake in incinerator plant. Directs workers in feeding waste material into furnace. Starts forced air-draft blower and turns valve to admit liquid or gaseous fuel or signals workers to shovel coal into furnace. Lights fire in furnace by pressing electric-arcignition switch or by other device. Observes and adjusts combustion control devices, such as pyrometers, meters and burners to maintain specified temperatures and to obtain efficient combustion. Moves levers to open grates for ash removal and turns valve on waterline to sprinkle and settle ashes. May tend low pressure and settle ashes. May tend low pressure boiler to provide steam to heat plant. May repair furnace refractory lining with fire-brick and replace and adjust machine parts.

**8169.70 Water Treatment Plant Operator; Purifying Plant Operator (Water works)** Controls treatment plant equipment to purify and clarify water for human consumption and industrial use. Controls flow of raw water into plant by starting and regulating operation of electric motors, pumps and valves. Adds specified amounts of chlorine, ammonia, lime or other chemicals to disinfect, deodorize, and clarify water or adjusts automatic devices which admit chemicals in controlled dosages. Starts agitators to mix ingredients. Allows impurities, precipitated by chemicals to settle



## NATIONAL CLASSIFICATION OF OCCUPATIONS

to bottom of tank. Removes suspended impurities by filtering water through coal or sand beds or other filtering material. Pumps purified water into water mains. Monitors control panel consisting of meters and gauges to determine rate of flow, loss of head and water elevation and manipulates switches to adjust distribution of water. Cleans tank and filter beds by flushing with hose or backwashing (reversing flow of water). Lubricates moving parts of machine and makes minor repairs and adjustments to maintain operating efficiency. Determines acidity and colour of water by standard colour reaction test. Determines amount of impurities in water, using conductivity meter, adding alum and other chemicals to coagulate impurities and reduce acidity. Records residual content of chemicals, water turbidity, water pressure and other data as prescribed. May filter water through rotating screens to remove coarse impurities.

### **817 AUTOMATED ASSEMBLY LINE AND INDUSTRIAL ROBOT OPERATORS**

Automated assembly line and industrial robot operators operate and monitor automated or semi automated assembly lines.

#### **8171 AUTOMATED ASSEMBLY LINE OPERATORS**

Automated assembly line operators operate and monitor automated or semi automated assembly lines.

#### **8172 INDUSTRIAL ROBOT OPERATORS**

Industrial Robot operators load and unload industrial robots and perform related tasks.

**8172.10 Robotic Machine Operator** sets up and operates industrial robot to drill, countersink, and counter bore metallic and nonmetallic work pieces used to manufacture aircraft parts or tooling, according to specifications and preprogrammed machine control instructions: Reads work order and specifications to determine prescribed setup and operation. Mounts and positions work piece on locating pins of holding fixture adjacent to robot, manually or using hoist, and aligns and secures work piece on

holding fixture, using template, bolts, hand tools, and power tools. Installs specified type and size drill bits in end effectors and places end effectors in holding station adjacent to robot. Loads cassette tape of machine instructions into machine controller or enters commands to retrieve preprogrammed instructions from mainframe computer. Pushes button or enter commands to activate robot that automatically retrieves and secures designated end effectors on robot arm and positions arm for drilling. Operates robot to drill holes in test specimen and measures holes for conformance to specifications, using measuring instruments. Enters commands to start robot, observes robotic operation, and monitors screen of machine controller for malfunctions and error messages. Changes worn drill bits or adjusts machine according to error message instructions. Inspects finished work piece for conformance to specifications. Cleans parts, tools, and fixtures, using solvents and rags. May set up and operate robot to perform additional machine operations, such as sealing and fastener installation, to join component parts into complete assembly.

**8172.90 Industrial Robot Operators, other** include operators those who load and unload industrial robots and perform related tasks not elsewhere classified.

### **82 MACHINE OPERATORS AND ASSEMBLERS**

Machine operators and assemblers operate and monitor industrial machines, on the spot or by remote control, or they assemble products from parts according to strict specifications and procedures.

#### **821 METAL AND MINERAL PRODUCTS MACHINE OPERATORS**

Metal and mineral products machine operators operate and monitor metalworking machines, or make products composed primarily of non metallic mineral materials.

#### **8211 MACHINE TOOL OPERATORS**

Machine tool operators operate and monitor automatic or semiautomatic metal working machines which perform repetitive work and are set up by machine tool setters.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8211.10 Machinist General** operates various types of power driven metal cutting or grinding machines for cutting and grinding metal. Studies drawings or measures out sample with appropriate measuring instruments to note different dimensions and sequence of operations required. Selects metal piece and marks it or gets it marked for machining operations required. Fastens metal in chuck, jig or other fixture and respective tool or cutter, according to sequence of operation, on appropriate machine. Checks machine setting or sets it for stipulated machine operations. Selects machine feed and speed and starts machine. Controls flow of coolant (cutting lubricant) and manipulates hand wheels or applies automatic controls to feed tool to metal or metal to tool. Observes cutting or grinding both from marking and machine readings, checks for dimensions as necessary and removes parts when machining is completed, checks completed part with measuring instruments and gauges to ensure prescribed accuracy. Makes adjustments if necessary and repeats operations, as required, on same or other machines. May assist in setting up machine for repetitive work, change tools, make simple adjustments, clean and oil machine.

**8211.15 Turner ; Lathe Operator** makes metal articles to required specifications using lathe and cutting tools. Studies drawings and other specifications of parts to be made. Selects metal, holds it in chuck, jig or fixture on lathe as required, centres it by manipulating chuck jaws or otherwise using dial indicator or marking block and securely tightens it in position. Selects correct cutting tool, grinds it if necessary and holds it tight in tool post at correct height. Sets feed and speed and starts machine. Manipulates hand wheels or starts automatic controls to guide cutting tool into or along metal. Controls flow of coolant (cutting lubricant) on edge of tool. Arranges gears in machine to obtain required pitch for screw cutting. Calculates tapers and sets machine for taper turning, controls lathe during operation by means of hand wheels and levers and frequently checks progress of cutting with measuring instruments such as calipers and rule, micrometers, etc. Stops machine, removes completed part and checks it further with instruments to ensure accuracy. Repeats

operations if necessary. Cleans and oils machine. Is designated as **ROLL TURNER; RELIEVING LATHE OPERATOR; SURFACE LATHE OPERATOR** etc. according to type of lathe on which worked. May improvise devices and make simple adjustments to machine. May recondition lathe tools.

**8211.20 Turret and Capstan Lathe Operator** operates turret or capstan lathe for mass production of metal components. Studies specifications of parts to be fashioned. Checks tools set in order of sequence of operations in appropriate parts of turret. Clamps work piece accurately in position on lathe using chuck, collets, fixtures or other device as required. Checks guides and stops set by Tool Setter or by self to limit or control movement of tools. Selects rotation speed of metal as guided and starts machine. Manipulates hand wheels or sets and starts automatic controls to guide each cutting tool in turn in order of sequence into or along metal. Controls flow of cutting lubricant to tool tips. Observes cutting operation by different tools. Stops machine after each operation and checks machining with gauges and measuring instruments and makes necessary adjustments if necessary to ensure accuracy. Is designated as **WARD OPERATOR**, if engaged in operating ward machine (a type of automatic lathe). May shape and sharpen lathe tools. May oil and grease machine.

**8211.22 Shaper; Shaping –Machine Operator** shapes metal objects to required specifications using shaping machine and cutting tools. Examines drawings and other specifications of part to be made. Fastens metal accurately in position in vice. Selects appropriate cutting tool and fixes it in tool holder on machine. Sets appropriate speed feed and stroke of machine depending on nature of required cut, type of metal etc. Adjusts machine table and tool post by manipulating levers or controls. Starts machine. Turns hand-wheel to feed cutting tool into or across work or engages automatic feed. Checks progress of cutting with measuring instruments and makes necessary adjustments to ensure accuracy. Stops machine when completed and removes work from it. May sharpen and make own tools. May oil and clean machine.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8211.24 Planer** sets and operates single or double column planing machine to shape metal objects to required dimensions. Studies drawings and specifications for setting work piece and tools for different operations involved. Fastens metal object accurately in position on machine table with bolts, nuts and other fixtures. Selects single or double –faced tool and fixes it in tool holder of machine. Adjusts guides, stop and other controls to set speed and limits of forward and backward movements of machine table. Starts machine. Turns hand wheels to bring cutting tool position over metal to start machining. Manipulates hand-wheels or starts automatic controls to guide tool into and across metal at end of each stroke. Changes tool and position of metal if required. Checks and measures work to ensure correct dimensions. Adjusts position of table or tool as necessary for accurate performance. May oil machine. May specialise in any particular type of planning and be designated accordingly.

**8211.26 Planer, Edge** planes edges of heavy metal plate, girders etc. for structural work using appropriate cutting tools and edge shaping machine. Fastens plates, angles and other metal objects accurately in position on machine table using fixtures, bolts and nuts. Selects appropriate cutting tool and clamps to machine spindle. Selects and sets speed and feed of machine depending on nature of machine operation and metal used. Starts machine. Lowers spindle of machine with cutting tool over metal to plane or cut edges. Regulates flow of cutting lubricant over edge of tool where necessary. Finishes edges of metal to required finish or smoothness by changing shaping or grinding tools in machine. Checks finished metal with measuring instruments and gauges for accuracy. May oil and clean machine. May sharpen machine tools. May specialise in particular type of planing and be designated accordingly.

**8211.28 Slotter; Slotting Machine Operator** sets and operates slotting machine to cut slots keyways etc. in metal work pieces. Examines drawings and other specifications for type and size of slots and keyways to be cut on metal objects. Fastens metal object accurately in position on machine table with bolts, clamps and other

fixtures. Selects cutting tool and fixes it in tool holder of machine. Adjusts guides, stops and other controls to set stroke and speed of tool movement. Adjusts table and sets work piece correctly for cutting operations. Starts machine and applies cut. Observes progress of cutting. Stops machine and checks slotted or grooved area for accuracy of depth and width using measuring instruments. Cleans and oils machine. May assist in setting up machine, and make simple adjustments. May recondition and sharpen tools.

**8211.30 Miller** cuts metal blocks, gears, tools, cutters, jigs, components, etc. accurately according to drawings or samples by means of multi-toothed rotary cutters on milling machine. Studies drawings and other specifications of part to be made. Calculates feed, speed table, cutter and work angles, indexing, gear trains, number and type of cutter required, etc. using trig-nometrical and log tables as necessary. Fastens blank (object) securely on machine table on vice or between centres as required in correct alignment using dial indicator, bolts, nuts, clamps and other fixtures and instruments. Selects and clamps selected cutter on arbor (tool holding device of) or spindle of milling machine. Sets machine, dividing head, work, gear trains, machine feed and speed etc. depending on nature of machine operation and metal handled. Starts machine. Manipulates hand wheels or applies automatic controls to start machining. Controls flow of cutting lubricant on edge of tool and observes progress of cutting. Stops machine and checks product while machining and on completion using gauges and measuring instruments for accuracy. Repeats process if necessary. May perform machine operations such as keyway milling, gear cutting, facing flute cutting, surfacing etc. as required. Is designated as **HOBBING MACHINE OPERATOR**, if engaged in hobbing machine. May clean and oil machine. May grind and make form cutters.

**8211.32 Gear Cutter** cuts gear-teeth on metal blanks on gear cutting machine using special cutters. Examines drawings and other specifications of gear to be cut. Calculates suitable gear trains for division, cutter and blank arbor rotations proper helix,

## NATIONAL CLASSIFICATION OF OCCUPATIONS

and different angles, automatic feed, number and type of cutter etc. and sets machine accordingly. Mounts blank in position using mandril, fixtures etc. as required and sets appropriate cutter or tool on machine. Turns and adjusts angle and position of blank and cutter in relation to one another and adjusts relief of cutter teeth according to calculations. Adjusts guides and stops to limit or control movement of tools. Selects rotation speed of metal blank and starts machine. Turns hand wheels or engages automatic controls to guide cutting tool into or along metal. Controls flow of cutting lubricant over tools and observes operation. Stops machine and checks cut teeth for size, depth and shape using measuring instruments and gauges for accuracy. Cleans and oils machine. May grind or recondition own tools. Is designated as **BEVEL GEAR SHAPER; GEAR PLANER; GEAR SHAPER; GEAR HOBBER** ; etc., according to type of gear and machine operated.

**8211.34 Heavy Duty End-Mill Operator** machines ends of columns, girders etc. to required finish for structural work by means of segmented end-mill and heavy duty milling machine. Fastens metal object accurately in position on machine table, using nuts, bolts and other fixtures. Selects appropriate segmented milling cutter and fixes it to machine spindle. Adjusts guides, stops and other controls to determine speed and limits of table movement. Starts machine. Controls flow of cutting lubricant on edge of tool and observes progress of milling ends of metal object. Stops machine when milling is over and checks finished surface for accuracy to required tolerances using measuring instruments. Removes metal from table and repeats process. May oil and clean machine.

**8211.36 Driller Metal, General** drills holes in metals according to specifications using drilling machine. Studies markings or drawings and other specifications for type and nature of holes to be drilled. Selects appropriate drilling bit or cutter and fits it in machine spindle using drilling chuck or otherwise. Aligns metal accurately in position on machine, table using jigs and other fixtures as required. Adjusts guides and stops to limit or control downward

movement of drill. Sets rotating speed of spindle and starts machine. Lowers drill exactly on control punch mark on hole to be drilled. Controls flow of cutting lubricant on edge of drill. Observes progress of drilling and makes necessary adjustments to ensure accuracy. Stops machine and pull out drill when hole is drilled. Cleans drilled area and checks hole for accuracy with measuring instrument. Selects and uses counter bores where required. May use reamers for reaming operation. May do tapping (screw cutting) on drilling machine using tapping attachment. May sharpen and recondition drill bits or tools.

**8211.38 Radial Driller** operates radial drilling machine to drill holes in heavy metal blocks, girders, plates, etc. by adjusting radial arm and carriage of machine according to positions of holes to be drilled. Studies drawings and other specifications for size and number of holes to be drilled on metal. Fastens metal accurately in position on machine table, using dial indicator, jigs and other fixtures as required. Selects appropriate drill and fixes it in machine spindle. Draws by hand moveable arm or carriage to bring drill bit over required area of metal for drilling and starts machine. Lowers spindle, aligns drill accurately over hole to be drilled. Checks setting for accuracy by trial, readjusts if necessary and locks respective positions. Controls flow of coolant while drilling. Checks hole for accuracy. Repeats drilling operation over wide area of metal by stretching radial arm and adjusting position of carriage and drilling spindle over hole to be drilled. Is designated as **TOWER DRILLING MACHINE OPERATOR** if engaged in operating tower drilling machine to drill large number of uniform holes in big plates, columns etc. by adjusting position of travelling tower in relation to location of holes to be drilled. May clean and oil machine. May grind drills. May cut screws with tapping arrangement and do reaming and counter boring where needed.

**8211.40 Borer** bores holes in metal objects for various mechanical purposes by means of boring bars and boring machine. Examines drawings and other specifications of holes to be bored. Fastens metal object accurately in position on machine table, using jigs and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

fixtures as required. Selects boring bar and fixes it in machine spindle. Centres hole accurately using cutting tool as guide and adjusting object to desired position. Selects and sets speed and feed of machine. Starts machine to rotate cutting tool or object depending on type of machine operated and moves levers to advance cutting tool into position to start boring. Controls flow of cutting lubricant on edge of tool. Checks progress of boring with measuring instruments and makes necessary adjustments to ensure accuracy. Stops machine when boring is completed and removes object from table. Repeats operations as required. Sets machine to required pitch after adjusting hole position while threading by boring machine. Is designated as **VERTICAL BORER or HORIZONTAL BORER** according to type of machine operated. May clean and oil machine. May sharpen and recondition tools. May set machine for operator. May set depth of cut and do step boring in blind holes.

**8211.42 Cylinder Borer** Bores cylinders of engines to specified accuracy by means of cylinder boring machine and special cutting tools. Examines drawings and other specifications of cylinder to be bored. Fastens cylinder block on machine table in position by use of jigs and fixtures as required. Selects cutting tool and fixes it in machine spindle. Adjusts position of cylinder block accurately below cutting tool exactly over cylinder hole to be cut. Selects rotation speed of tool, starts machine and applies cut. Switches on vacuum pump mechanism of machine. Controls flow of lubricant on tool. Observes progress of work. Checks size of bore with gauge or measuring instrument and ensures that cuttings are drawn off by suction while boring. Stops machine when boring to required finish is completed and cutting tool automatically withdrawn from cylinder hole. Checks cylinder hole with measuring instruments to ensure accuracy. Repeats operations as required on other holes to be bored. May do cylinder re boring. May make simple adjustments to machine. May clean and oil machine.

**8211.44 Rifling Machine Operator** sets and operates rifling machine to make grooves

inside rifle barrels. Studies drawings and other specifications of barrel rifling to be done. Centres barrel in steady-rests and chuck of machine. Mounts appropriate broach cutter or sets of cutters on cutting head at end of rifling bar of machine and adjusts them to cut grooves of required specification. Regulates oil feed on edge of cutter. Starts machine to move rifling bar and cutters spirally through bore of barrel. Observes operation of cutting grooves (rifling) in bore surface. Stops machine when cutter has passed entirely through bore and withdraws rifling bar. Measures rifling with gauges to ensure conformity to specification. Removes barrel from machine and inspects rifling for defects. Removes dulled cutters and replaces them with sharpened ones as necessary to ensure that rifling grooves are cut to specified depth. May shape, harden and temper cutting tools.

**8211.46 Bending-Machine Operator** sets up and operates machine to bend metal structural shapes, such as bars, rods, angles, pipes, and tubes, to angle or contour specified by work order, drawings, templates, or layout: Selects and bolts holding clamp, die block, and guide clamp to machine. Positions and clamps end stops on machine to set specified location of bend. Inserts or screws plug stops into guide wheel to set specified degree of bend. Positions workpiece against end stop. Locks holding clamp and guide clamp onto workpiece. Lubricates workpiece with oil. Starts turntable that draws workpiece through guide clamp around die block until stopped by plug stops or until dial indicator points to specified degree of bend. May slide mandrel into tubing instead of using guide clamp. May preheat workpiece, using hand torch or heating furnace. May use hand-powered bending machine for short runs. May fill tubes or pipe with sand, resin, or lead to prevent wrinkling or collapsing during bending operation. May heat tube, using torch, and manually bend tube or pipe around forming blocks. May flare tube ends, using tube flarer and cut or trim metal stock to length, using power shears or saws.

**8211.50 Glazer; Buffer** grinds and polishes metal components before and after electroplating, on polishing lathe, using

## NATIONAL CLASSIFICATION OF OCCUPATIONS

appropriate wheel of cloth, leather or felt and chemical compounds. Starts polishing lathe, fit buffing wheel to it and applies emery compound. Holds component in hand or in suitable holding device and presses it against rotating wheel. Grinds surface slowly to uniform finish. Replaces buffing wheel by polishing wheel, applies polishing compound and repeats process for setting grains and obtaining high polish. May also polish metal articles without plating.

**8211.55 Grinder, Tool and Cutter** grinds machine tools and cutter to correct specifications by special grinding machines and wheel. Studies drawings and other specifications to understand nature of grinding operation required. Fastens appropriate abrasive wheel to spindle of machine. Mounts cutting tool to be ground on machine using dividing head, jig or fixture as required. Manipulates swivel tables, wheel head and work holding device, guide finger, etc. as necessary to set machine to appropriate angle for grinding desired level on cutting edges of tool selects and sets speed and feed to machine according to nature of work and wheel used. Starts machine, brings rotating grinding wheel in contact with edge of tool and grinds proper angles, clearance, flutes etc. as required on tool or cutter set, frequently checking it with gauge or measuring instrument while grinding to ensure accuracy. Rotates work through proper angle by dividing head or otherwise to set next flute or teeth of tool or cutter for grinding and continues operation. Uses cutting fluid or coolant as found necessary and ensures that no part of work gets burnt or damaged while grinding. Stops machine and removes tool when grinding is completed. Changes grinding wheel and position of tool as and when required. May give final finish to cutting edge by hand using hones. May oil and clean machine. May specialise in grinding a particular type of tool and be designated accordingly. May check ground tool or cutter by shadow projector to ensure accurate finish.

**8211.60 Power Press Operator, Metal** operates power driven press for manufacture of sheet metal components by punching, blanking and forming operations. Operates machine manually to check length of stroke of rams, setting of die and punch, placing of

safety guards and ensures that machine is safe for operation. Starts machine, feeds metal strip, sheet or component on die and presses foot pedal or hand lever, as provided in machine, to bring punch over die to cut, bend or form metal according to type of tool set. Stops machine, get trial pieces inspected and continue operation after resetting, if necessary. Arranges ready stock of feeding material and set machine for continuous operation if possible. Observes operation, avoids wastage, maintains production and gets cuttings and components removed as necessary. Is designated as Broaching Machine Operator if engaged in broaching operation (cutting away metal). May get metal strips and shafts oiled before feeding. May clean and oil machine.

**8211.61 Sheet Metal Machine Operator** operates sheet metal machine for sizing, bending and forming sheet metal for further operations. Sets machine to required dimensions (except press tools) using common measuring instruments such as foot rule, callipers etc. Operates machine, feeds trial piece and checks for dimensions and resets machine if necessary. Checks out-turn from time to time to ensure correctness. May operate one or more sheet metal working machines such as shearing machine, bending machine, channelling machine, forming machine and is designated as **SHEARING MACHINE OPERATOR, BENDING MACHINE OPERATOR, CHANNELING MACHINE OPERATOR, GROOVING MACHINE OPERATOR, FORMING MACHINE OPERATOR**, etc. May set cutters, blades, dies etc. and undertake minor repairs under guidance.

**8211.62 Ball Filing Machine Operator** sets and operates ball filing machine for filing balls to required diameters. Studies drawings and other specifications of ball to be made. Starts pump and conveyor, feeds roughly pressed balls into intake hopper and regulates its supply to machine. Feeds balls into conveyor and rotates pressure wheel manually for trial operation. Adjusts machine, guides, stop and other controls to regulate load, wheel pressure, etc. according to machine performances and specifications prescribed. Rotates wheel at required speed to control cutting of balls fed and ensures desired smoothness of ball surface. Starts

## NATIONAL CLASSIFICATION OF OCCUPATIONS

machine. Adjusts feed finger and pick off finger in tool pocket for obtaining desired clearances. Examines filed balls visually and with measuring instrument to ensure uniformity, smoothness of filing and adherence to specifications. Unloads filed balls from machine through chute to container placed below. May clean and oil machine. May operate ball grinding machine and be designated as **BALL GRINDING MACHINE OPERATOR**.

**8211.64 Ball Lapping Machine Operator** lapps steel balls after grinding to accurate and high finish by special grinding wheels and lapping machine mostly for manufacture of ball bearings. Starts pump and conveyor and feeds hard ground balls into intake hopper. Adjusts machine, guides, stops and other controls to regulate load, wheel pressure etc. according to machine performance and specifications prescribed. Starts machine, sets rotation speed of wheel and regulates flow of coolant & oil into machine. Opens hopper gate and feeds ball into machine. Observes operation and adjusts feed finger and pick-off finger in tool pocket for obtaining required finish. May operate ball grinding machine and be designated according.

**8211.66 Dividing Machine Operator** calibrates and graduates metal, wood, perspex or ivory scales into required number of divisions by dividing machine for measuring lengths and angles. Studies drawings and other specifications of parts to be calibrated. Selects metal, ivory or plastic work piece depending on nature of work and specifications prescribed. Marks or bisects work piece as required. Secures blank plate on circular or rectangular calibrated or graduated base plate of machine with catching devices. Aligns blank and base plates according to specification and number of divisions to be marked. Adjusts dividing machine by turning its pointer to required position; and sets it (machine) to required rotations to rotate base and blank plate to set position according to number of division required. Presses and draws forward by hand pointer of machine over blank plate to cut lines, marks etc. to indicate divisions. Completes calibrating plate with specified divisions to indicate lengths, angles etc., by rotating wheel of machine and graduating

blank plate with pointer mechanism. Removes calibrated plate from machine and cleans and polishes it to give smooth finish using emery paper. Sends graduated plate to Engraver for engraving appropriate numerals, words, degrees, etc. May sharpen knife or cutter of machine. May engrave plate with specified marks, symbols, etc.

**8211.70 Die Copying Machine Operator ; Die Sinker Machine** sets and operates special type of electronic or hydraulic die sinking machine for making dies by copying master (Pattern). Places master and metal block at appropriate distance on machine table and rigidly secures them in position with bolts and nuts. Selects tracer pin or feeler and fixes it in machine spindle over master and sets appropriate cutter in other spindle over metal block to be cut. Centres position of tracing pin and cutting tool by adjusting position of master and metal block by movement of machine table according to markings made on block. Lowers spindles to have tracer pin or feeler touch master and cutter set on metal block. Sets feed and speed of machine. Starts machine and regulates flow of coolant over cutter. Observes operation as tracing pin or feeler travels over contours of master die and its reproduction by processes of copying on metal block by cutter. Measures machined area frequently with precision instruments for length, width and depth and ensures exact copying of master pattern. Stops machine when required to change tracer and cutter according to nature of operation and continues operation until master pattern is completely reproduced on metal block. Checks completed die copied on metal block alongwith master, using precision instruments and ensures desired accuracy in all dimensions. May oil and clean machine. May send machined die for further milling (cutting ) to secure better or final finish if necessary.

**8211.75 Profiling Machine Operator** sets and operates profiling machine (special type of milling machine) to make smaller dies, gauges, etc. by copying samples and templates in two dimensions (length and breadth). Fixes cutting tool and work (metal block) on machine and sets table feed and cutter speed. Clamps model (sample ) or template of object to be made on fixture

## NATIONAL CLASSIFICATION OF OCCUPATIONS

attached to machine. Fits tracing finger or pin on secondary or tracing spindle of machine. Turns and wheels to bring tracing finger in contact with model or template and milling cutter with work respectively. Regulates flow of coolant (cutting lubricant) on cutter and starts machine. Observes operation of automatic machining of work of copying sample or template according to travel of tracing figure in contact with model (sample or template). Checks progress from time to time with precision measuring instruments to ensure correct machining. Stops machine to change milling cutter. Resets work in position, etc. if necessary and continues machining until model is exactly reproduced in work to ensure accurate copying. Removes work from machine, cleans and oils machine. May be designated according to parts and nature of profiling work done.

**8211.80 Metal Stamper** stamps trade marks, code number and other designs on metal parts or components using stamping machine. Fits appropriate metal die containing trademarks, symbol, batch number etc., to spindle of stamping machine. Starts machine. Places hot or cold metal object or component holding with tongs, below spindle on machine table – and presses pedal to lower and press die over metal for stamping appropriate marking, checks and ensures that stamping on metal is clear. Reports defects to superior and gets machine reset. Removes stamped metal from table and places it at required place. May clean and oil machine. May keep record of stampings made.

**8211.90 Machine Tool Operators, Other** includes all other machine tool operators engaged in operating automatic, semi-automatic and simple special purpose production machines, sawing and filing by machine, grinding by hand, cutting threads in bolts and nuts etc., and may be designated as;

**Automatic Machine Operator** if tends and feed, one or more automatic machine tools;

**De-Burrer** if removes burrs and rough spots from metal parts or castings by use of hand files or using emery stone;

**Sawing Machine Operator** if cuts and files various materials using electrically powered band-type sawing and filing machines;

**Thread Roller** if tends screw-making machine in which thread is formed on screws by rolling head with circular dies by action of hardened metal dies that reciprocate, rolling screw shank between their surfaces and pressing metal of screw shank into thread form;

**Tapping Machine Operator** if cuts internal and external threads by means of tapping machine set up and adjusted by other workers or himself; Profile Roller etc.

**8212 CEMENT AND OTHER MINERAL PRODUCTS MACHINE OPERATORS**

Cement and other mineral products machine operators operate and monitor extrusion, moulding, mixing, grinding and cutting machines which manufacture and finish various pre-cast concrete and stone products, or which make cast stone for building purposes.

**8212.10 Polishing Machine Operator (Mosaic Tiles)** operates polishing machine fitted with revolving grinding discs to polish mosaic tiles to high finish. Fits appropriate grinding (carborandum) bricks to rotating discs of machine. Spreads layer of cement solution of required shade over floor surface and sprinkles floor area with water. Connects machine to power supply and switches on machine to rotate revolving discs. Runs machine slowly over entire surface of tile floor to grind and polish it. Changes grinding stones of machine as required. Repeats sprinkling of cement liquid over surface for settling between tile joints and polishes floor surface again using finer type of grinding stone. Washes polished surface with water and ensures required finish. Removes grinding stones and fits felt or cloth pad to machine. Sprinkles oxalic acid powder with water over polished surface and continues polishing to secure glossy finish on polished surface. Cleans and polishes corners, edges of room with grinding stones. Oils and cleans machine periodically. May attend to minor repairs to machine.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8212.20 Batching and Mixing Plant Operator, Construction; Batchingman, Construction; Concrete Mixer Plant Operator** operates power-driven central mixer plant that prepares batch and mixes concrete. Starts power unit and rotation of mixing drum; opens hopper doors of gravel, sand and cement storage bins to allow these materials to flow into scale hoppers for automatic weighing; opens scale hopper doors to allow weighed materials to pass into mixing drum in required proportion; opens valve allowing correct amount of water to flow from measuring tank into mixing drum; allows drum to rotate for specified time for proper mixing of materials into concrete; opens discharge chute to empty concrete from mixing drum into bucket, conveyor or other carrier; controls batch timer and records number of batches; cleans mixer. May repair and maintain mixer and power unit. May supervise helpers.

**8212.30 Concrete Mixer Operator** operates small portable power-driven concrete mixing machine to mix dry cement, sand, gravel and water for making concrete or cement mortar. Starts motor and rotation of mixing drum; feeds materials (sand, gravel and cement) in proper proportion into mixing drum, using shovel or by manipulating lever that controls feeding; admits measured amount of water into drum; allows drum to rotate for specified time for proper mixing of materials into concrete; discharges concrete from drum by tilting drum or by opening discharge chute; cleans interior with water and removes adhering concrete. May undertake running repairs.

**8212.40 Asbestos-Cement Products Maker** makes asbestos-cement products such as tiles, roofing sheets and other pre-cast materials for construction and like purposes by manual and mechanical processes. Feeds hopper of mixing machine with requisite quantity of asbestos and cement in prescribed proportion and admits water in mixture to make slurry of required viscosity. Pumps slurry into moulds of sheets or articles to be made and allows it to settle and solidify there for prescribed period of time. Opens moulds and gets cast material removed for sizing, finishing and other purposes. May perform one or more tasks and be designated accordingly.

**8212.50 Cast-Stone Maker; Artificial-Stone Maker** performs one or more hand or machine tasks in making of artificial stone which simulates natural stone. Mixes materials, such as water, cement, gravel, granite chippings, slag, coke, breeze or stone dust in required proportions by hand or machine. Fills moulds with mixture, allows mixture to harden and removes it from mould. Finishes cast stone by smoothing surface with sand-stone, polishing with emery and buffing wheel and levelling corners and edges. May be designated according to work performed.

**8212.60 Lead Bush Maker (Abrasive Wheel)** makes lead bushes for abrasive wheel by running molten lead around metal core inserted into centre hole. Places abrasive wheel over chuck-like platform of machine; presses foot pedal of machine to lift spindle disc device to fit into hole of emery wheel; positions emery wheel correctly and fastens it to chuck by tightening bolts and nuts. Sets metal upper plate with opening over hole to emery wheel; pours molten lead from furnace through hole of upper plate into emery wheel hole to form bush round it; allows lead to cool down and then releases foot pedal to drop central spindle; removes cooled upper plate from emery wheel; loosens chuck nuts and bolts and removes bushed abrasive wheel. Maintains power heated lead furnace or kettle at prescribed temperature to keep lead in molten condition.

**8212.70 Fettler (Brick & Tile)** grinds and sands ceramic products, such as clay slabs, refractory tiles, ceramic tiles, and bisque tiles to remove defects, press marks, or rough spots: Grinds, brushes, or scrapes surface of ceramic product to remove rough spots, press marks, and defects, using power grinder and wire or stiff brush. Smooths (fettles) edges and surface of product, using sandpaper or handstone. Discards broken or poorly pressed tile. Stacks ceramic tile or clay slates in specified pattern on boards, plates, trays, or in saggars. May measure dimensions of tile for conformance to specifications, using gauge. May tend machine that automatically fettles tile.

**8212.90 Cement and Other Mineral Products Machine Operators, Other**

## NATIONAL CLASSIFICATION OF OCCUPATIONS

include workers who operate and monitor extrusion, moulding, mixing, grinding and cutting machines which manufacture and finish various pre-cast concrete and stone products, or which make cast stone for building purposes not elsewhere classified.

### **8218 SUPERVISORS AND FOREMEN, METAL AND MINERAL PRODUCTS MACHINE OPERATORS**

Supervisors and Foremen, metal and mineral products machine operators supervise and guide workers engaged in sawing, cutting dressing, carving, polishing and other stone working operations, (Except jewels and precision stones) and in blacksmithy, tool making and machine tool operations and guide workers as necessary to achieve correct production.

**8218.10 Supervisor and Foreman, Stone Cutting and Carving** supervises and guides cutting, dressing and carving of stones for making statue, floral designs, figures, etc., according to model, design or specifications. Studies details of product to be made, selects right type of stone block, marks it as necessary and decides plan of work. Explains details and tasks to be performed to workers, supervises cutting, dressing, carving, polishing and related operations and instructs workers as necessary. Observes and measures articles at different stages of production, gets defects removed or rectification done, where necessary and ensures correct production to required finish. May copy design from catalogue and undertake enlargement work. May guide matching and repair work.

**8218.20 Supervisor and Foreman, Machine Tool Operations** supervises various machining and grinding operations and ensures production to required specifications. Studies drawings and plans lay out of work according to machine capacity. Arrange for material, tools, cutters, jigs, fixtures etc., distributes work and explains working details to respective machine operators. Guides setting of machines, checks trial piece and ensures correct operation. Watches and measures work at different stages of production and gets defects removed wherever noticed. Keeps machines, tools and equipment in

good working condition, prevents wastage of material and serves as liaison between workers and management. Maintains necessary records and registers and ensures upkeep and discipline of shop supervised. May be designated according to machines or section supervised.

### **822 CHEMICAL PRODUCTS MACHINE OPERATORS**

Chemical products machine operators operate and monitor machines which process a variety of chemical and other ingredients to produce pharmaceuticals and toiletries, explosives, photographic or other chemical products, or to finish, plate and coat metal articles.

#### **8221 PHARMACEUTICAL AND TOILETRY PRODUCTS MACHINE OPERATORS**

Pharmaceutical and toiletry products machine operators operate and monitor machines which process a variety of chemicals and other ingredients used in the production of pharmaceuticals and toiletries.

#### **8222 AMMUNITION AND EXPLOSIVE PRODUCTS MACHINE OPERATORS**

Ammunition and explosive products machine operators operate and monitor machines which process a variety of chemicals and other ingredients in the production of ammunition and explosives.

**8222.10 Continuous Machine Operator (Match Box Manufacturing); Continuous Machine Driver (Matches)** operates continuous machine to dip match splints in liquid paraffin and match-head composition, dry and deliver them in finished form. Checks supply of liquid paraffin into machine; ensures that composition tank of machine contains match-head composition to prescribed level and that magazine of machine is kept continuously full with match splints; turns handwheel to adjust machine to immerse match splints to specified depth in match head compound. Sets thermostat or thermometer in compound dip tank and turns steam and cold-water valves to regulate compound temperature and viscosity. Starts machine; compares size of match heads

## NATIONAL CLASSIFICATION OF OCCUPATIONS

passing on conveyor with drawings of acceptable match heads and cuts unacceptable matches from conveyor with long handled push knife; raises or lowers conveyor or dip roll to immerse match splints in bath of paraffin and then in match head composition. Observes and ensures drying of match-head in drying chamber at specified temperature; drains and washes dip tanks to remove thickened compound. May replenish compounds and paraffin in dip tank.

**8222.20 Receiver (Match)** receives dried match sticks coming out of continuous machine in trays for delivering them to Box Filling Section. Pushes trolley containing empty trays to side of continuous machine; keeps empty trays on carrier of continuous machine for filling them with dried match sticks; collects filled trays from carrier and replaces them with empty trays from trolley; dresses match sticks in trays evenly by padding them by hand or with flat wooden piece; removes damaged and incomplete stick; arranges filled trays on trolley racks and pushes loaded trolley to specified point; ensures that paraffin level in continuous machine is maintained at prescribed level and fills container with liquid paraffin as necessary by opening paraffin tank tap.

**8222.30 Box Making Machine Operator (Match)** Operates power driven machine to fold veneers, paste them with paper and make complete outer and inner match-boxes. Collects outer, bottom and rim veneers and examines them for defects. Positions roll of blue paper on feed rack of machine and draws end of paper from roll over feed rollers; fills glue reservoir of machine and regulates flow of glue; feeds machine with sorted and dressed veneers, outer rim or bottom as required; starts machine by operating hand levels or by pressing electric button, ensuring that glue flows uniformly over blue paper, veneers move singly, folds and pasted properly, and finished outer and inner boxes carried over conveyor system ensuring that operation proceeds correctly, making necessary adjustments to machine. May operate outer box making machine or inner box making machine where two types of veneers (rim and bottom) have to be fed simultaneously.

**8222.40 Box Filling Machine Operator (Match); Box Filling Machineman (Match)** operates Box Filling Machine which automatically fills match boxes with prescribed number of match sticks and delivers filled and closed boxes. Starts machine by operating hand lever; checks feeding of empty match boxes into moving chain plate of machine and ensures that they are automatically opened; collects tray containing arranged match sticks and feeds magazine of machine with sticks in same order of arrangement by removing bottom plate of tray; checks movement of open boxes over chain plate and observes filling of specified number of sticks in boxes and closing filled boxes automatically; removes by hand unfilled and damaged boxes; ensures that filled and closed boxes are collected at delivery end and are removed for further processing. Maintains continuous feed of magazine with arranged match sticks and stops machine when operation completed. Cleans and oils machine. May do minor adjustments to machine.

**8222.50 Friction Machine Operator (Match)** operates friction machine which applies friction composition on sides of match box and dries them in drying chamber of machine. Fills composition container of machine with required quantity of friction compound; checks machine pump to ensure that friction solution is pumped over rollers at regular intervals; adjusts rollers, or aligns and fastens brushes, in machine; positions roll of levelled and bande-rolled match boxes on feed conveyor; starts machine and observes coating of friction compound on two sides of match box and drying in drying chamber; examines dried boxes coming out of drying chamber for defects and makes adjustments to machine for proper operation. Cleans and oils machine.

**8222.60 Box Closing Machine Operator (Match)** operates automatic matchbox closing machine to fit and close inner match box case into outer match box cover. Starts machine and checks and ensures proper feeding of inner and outer boxes into machine. Observes movement of inner and outer match box covers from bins over conveyors and their getting tilted into correct position, and inner case pushed inside outer cover; removes by hand damaged or broken

## NATIONAL CLASSIFICATION OF OCCUPATIONS

boxes from conveyor and deposits them in waste container; collects completed boxes at delivery end of machine and arranges them in trays for removal to filling section; stops machine if boxes get jammed over conveyor system, removes defects and continues operation.

**8222.70 Banderol and Labelling Machine Operator** operates or sets up and operates on automatic machine that glues trade labelling banderol papers (excise duty papers) to filled matchboxes. Adjusts feed hoppers and guides according to size of label and match boxes to be labelled; Changes applicator plate according to size of labels, regulates feeding mechanism and pressure of applicator rollers. Fills glue reservoir and loads labels and filled match boxes into machine; starts machine, observes operation and makes adjustments if necessary; removes jammed boxes or twisted labels from machine.

**8222.90 Ammunition and Explosive Products Machine Operators, Other** include workers who operate and monitor machines which process a variety of chemicals and other ingredients in the production of ammunition and explosives not elsewhere classified.

### **8223 METAL FINISHING, PLATING AND COATING MACHINE OPERATORS**

Metal finishing, plating and coating machine operators operate and monitor equipment which finishes, plates and coats metal articles or parts, in order to give them improved resistance to corrosion and abrasion, for decorative purposes, or to impart electrical or magnetic properties.

**8223.10 Electroplater** gives coating of gold, silver, nickel, chromium, copper etc. of required thickness to metal parts by electrolytic process. Examines strength of metallic solution and sets anode plates (positive terminal) in solution. Suspends degreased components well dipped in side plating solution and connects cathode (negative) to it. Regulates current and allows components to remain dipped in solution for specific period depending upon type and thickness of plating required. Removes

components and swills them in hot and cold water baths. Dries them in sawdust or centrifugal air dryer. Transfers components to unrigging rack or other specified place for polishing. May prepare plating solution under guidance of shop supervisor. Is designated as GILLDER if engaged in gold plating and ANODISER if colours aluminum and light alloys article using specific chemical solutions.

**8223.15 Bondarising Operator** cleans and applies chemical coating (chromate) on metal component before enamelling by dipping in hot chemical baths (vats). Regulates flow of steam and maintains strength and temperature of chemical solutions in vats. Dips components in hot bondarising solution by suitable mechanical device and keep them in it for specified time. Lifts and swills them in hot water bath and then in chromate vat. Transfers components from chromate bath to drying oven (at specified temperature) for air-drying. May apply phosphate coating instead of chromate. May do minor running repairs to hoist and other mechanical devices used in bondarising.

**8223.20 Enameller, Chemical** applies thin film of enamel on metal components by dipping in enamelling solution and drying them in ovens. Checks quantity and quality of enamel in glazed porcelain bath (vat). Dips components in bath and suspends them in mechanical conveyor passing through closed drying oven. Checks components after drying and repeats process to ensure good finish. May dip and dry components manually. Is designated as LACQUERER or JAPANER if engaged in manually applying solution of film forming substances or Black Japan Varnish. May also apply enamel or other solution by brush or spray.

**8223.25 Enameller, Hand** prepares enamel colours by mixing dye stuff, shellac etc. and enamels metal articles such as plates, vases etc., according to design. Powders shellac and dyes, adds water and mixes them in mortar. Heats mixture on mild fire and makes pencils of various thickness by heating and rolling on plate. Cleans and heats engraved articles slightly on moderate fire, carefully fills required colour in engraving with pencils and allows it to cool

## NATIONAL CLASSIFICATION OF OCCUPATIONS

down. Warms it up again and scrapes off excess colour with blunt hand scraper. May coat whole plate with colour in case of single colour enameling.

**8223.30 Reeling Machine Operator, Metal Drawing** tends to continuous supply of wire to lead bath for coating and reeling of finished wire. Mounts reels on shaft and draws wires through lead, acid, and washing baths to other side. Fixes ends to empty reels mounted on electrically driven shaft. Starts motor and watches smooth running of wires. Changes reels and joins ends of wires as and when required. Stops motor and pulls out wire in case of breakage. May be known as **REEL OPERATOR, BACK SIDE, and REEL OPERATOR, FRONT SIDE**, according to position of work.

**8223.35 Galvanizer** applies coating of zinc on ferrous articles by dipping them in molten zinc. Checks and controls quantity, quality and temperature of acid (hydrochloric acid), flux (zinc chloride) and zinc baths. Preheats articles if necessary and dips or passes them either manually or mechanically through acid, water, flux and zinc baths successively at controlled speed. Skims dirt from baths and continues operation with necessary adjustment of solution, temperature etc., ensuring regular and uniform coating. May similarly apply tin coating using palm oil as flux and be designated as **TINPLATER or TINNING MACHINE OPERATOR**. May regulate temperature by gauges and by colour of melting metals.

**8223.40 Dipper, Coal tar** tars metal articles (mostly cast iron) to prevent rust. Preheats articles to be tarred in furnace to required temperature. Dips them in bath or tank of heated coal tar. Ensures uniform application of coal tar on articles. Lifts them and allows excess tar to drain off. Dries articles by air blast. May also apply coal tar by brush or mop.

**8223.45 Oxidiser** oxidises fabricated metal surface to decorative finish by chemical process. Checks quantity and quality of cleansing and oxidising solutions and adjusts their strengths. Opens valve and regulates flow of steam into cleansing tank. Dips and cleans articles in cleansing tank and then in oxidising tank till required shade is obtained.

Ensures that articles do not get tarnished or rusty. May colour engraved silver-ware with oxidizing solution by means of brush and by wiping off excess solution from surface with cloth. May be designated as **BRONZER** if engaged in bronzing (make it appear like bronze) steel or brass articles by dipping in acid or suitable metal staining solutions. May remove oxidization and bronzing by buffing surface to give decorative finish.

**8223.50 Browner** treats surfaces of ferrous objects by exposing them in hot and cold chemical baths to obtain desired colour or shades. Cleans and removes foreign matter from surface of ferrous object by hard brush to provide direct contact of its surface with chemical solution when exposed to it. Prepares browning mixture and other chemical baths by dissolving specific amount of different chemicals in suitable hot and cold water tubs. Boils metallic object for prescribed period in strong caustic soda bath to remove grease, foreign matter etc. from it and wipes it off with clean wet cloth. Reboils object in clean water bath to remove alkaline effect and dips it in chemical bath for prescribed period to have desired colour or shade. Polishes treated surfaces on polishing machine or by hand with silk, soft cloth or leather to obtain desired shade of colour and applies coat of lacquer to effect better finish. May paint metallic surface with colour. May enamel metal surfaces.

**8223.55 Metal Sprayer** sprays metal on worn out metal part either for increasing size or for coating them. Fixes part in lathe, fastens spray gun in tool post of lathe, pushes wire –feed through hole in spray gun, connects rubber pipe with oxygen, acetylene and compressed air container through respective nozzles of gun and regulates valves for their correct supply. Ignites mixture with flint. Starts lathe to revolve part for uniform application of metal, adjusts wire –feed, moves gun to and fro for even spray of metal on portion to be sprayed and checks part from time to time for size and uniform coating. May use different type of fixtures and may manually operate spray gun.

**8223.60 Sample Checker, Metal Making; Sampler, Metal Making** checks samples of metal under production in furnace, rolling

## NATIONAL CLASSIFICATION OF OCCUPATIONS

mill, foundry section, etc. by sight, gauges or instruments to ensure these are according to specifications. Checks blooms, billets, forgings, metal castings etc, in production in furnace, rolling mill, forging, foundry or other metal making sections by sight, gauges, measuring devices, crack defectors and other necessary instruments Ensures correct dimensions, weight, soundness and absence of blow holes, irregular formation, etc. as per specifications and tolerances. Approves or records defects observed and suggests rectifications or rejections as necessary. May be designated as **SAMPLER, BLAST FURNACE; VIEWER, ROLLING MILL; VIEWER, FORGING, CHECKER, FOUNDRY;** etc. according to section and type of work done.

**8223.62 Shot Blaster** cleans metal surface by spraying steel grits on it at high pressure by means of compressed air. Lays articles to be cleaned in side shot blasting chamber, covers himself completely with protective clothing fitted with respiratory arrangements. Regulates air pressure and flow of steel grits, holds hose fitted with nozzle over articles, opens nozzle and sprays steel grits over them at high pressure for required period of time. Checks metal surface from time to time for finish and repeats process if required, is designated as **SAND BLASTER** if uses sand instead of steel grits.

**8223.64 Degreaser** removes grease, dirt and other foreign matter chemically from metal components prior to plating, polishing, enameling etc. Carries components in cages, jigs or any other suitable devices and suspends them for degreasing in chemical, electro-chemical or acid bath (vats) for specified period, depending on type of material and effect desired. Removes them from degreasing vat, not touching component by hand. Swills them in clean water bath and transfers them to rack or other devices for further operations. May also degrease component by scrubbing with powder and hard brush.

**8223.66 Rumbler; Barrel Operator; Drum Operator** cleans and smoothens small metal parts by rotating them in drum or barrel with chemical mixture, abrasive, saw dust and leather shavings. Loads articles in barrel, fills it with cleaning fluid or abrading

material such as sand, coal dust, etc, and rotates drum at specified speed for set time limit. Transfers articles to another barrel filled with saw dust and rotates them in same manner for fixed time limit to dry and polish articles. May slightly heat articles electrically in sawdust barrel to quicken drying process. May also polish articles in similar manner using leather shavings.

**8223.67 Picker** removes foreign matter and cleans both ferrous and non-ferrous articles by dipping them in succession in acid and water baths. Loads articles in cradles or in some hooking arrangement and dips them in acid bath or tank. Agitates bath or tanks by moving articles manually or mechanically for few minutes depending on type and condition of material. Transfers articles mechanically or manually to water bath or tank and washes acids off by stirring them in bath or tank. May use more than one acid bath or tank of varying concentration. May also dip articles in alkaline tank for neutralizing acid effect.

**8223.69 Hardness Tester, Metal** checks hardness of metal by operating hardness testing machine. Places metal to be tested on table of machine Attaches specified weights to give required pressure and fixes steel ball or diamond cone tester in machine depending upon type of metal to be tested and machine used. Operates lever to automatic press steel ball or diamond cone with prescribed force on metal surface and make deep impression, a dent on it. Reads hardness registered by machine or from chart and records it. Approves or rejects tested metal according to standard prescribed. May keep record of number and nature of articles tested .May clean and oil machine.

**8223.70 Speeder Machine Operator (Abrasive Wheel) Abrasive Wheel Tester** speed tests abrasive wheels on electric testing machine over normal operating speed to ensure that wheels are free from cracks. Opens protective hood of machine and fits securely finished abrasive wheel on hub of electric testing machine by tightening nuts and bolts using flanges, washers and bushes where necessary, closes hood door; adjusts meter and arbour of wheel to set machine for specified number of revolutions; starts and runs machine at specified test speed for

## NATIONAL CLASSIFICATION OF OCCUPATIONS

specified test period; observes meter reading to check and ensure that wheel disc is revolving at set speed without cracking; stops machine after set period of running or earlier if disc cracks (indicated by cracking noise). Opens hood door and removes discs from spindle after bringing it to rest. Places tested discs at specified point. May stencil on wheel working speed in r.p.m.

**8223.71 Sizing Machine Operator (Abrasive); Sizer (Abrasive)** operates automatic sizing machine to coat glue on abrasive coated cloth or paper. Fills glue tank of machine with glue; draws of abrasive coated paper or cloth roll from drying chamber of abrasive making machine and feeds it into feed rolls of sizing machine; observes operation of drawing and passing of abrasive coated cloth or paper through rolls above glue container where thin layer of glue coating is applied to abrasive coated material for fixing it, and thereafter through drying chamber to take down machine; stops machine, if paper or cloth gets stuck up, releases blocking and re-starts machine; reports to superiors if machine does not function properly. May oil and clean machine.

**8223.72 Abrasive -Coated Cloth and Paper Maker; Coating Flint Operator (Abrasive)** roll in machine; draws end of paper or cloth roll through guide rollers of machine for feeding it with material; checks and ensures that glue container and abrasive grain hopper of machine are full with glue and abrasive material, starts machine and ensures drawing of paper/cloth through rollers and application of glue on its desired face proceeds correctly; observes passing of glued paper/cloth through series of rollers over electric grain chamber where grain is sprayed to glue portion of paper/cloth by electro-magnetic device; opens glue tap as necessary to maintain steady supply of glue in glue container; stops machine if abrasive coated paper/cloth gets stuck up, cleans it and restarts; resets roll gaps as necessary for even tension of paper/cloth drawn; ensures that abrasive coated roll passes into drying chamber for onward transmission to sizing machine. Supervises work of helpers; replaces empty spool or beam of paper or cloth roll with filled ones to maintain continuous supply. Reports irregular

functioning of machine to superiors for removal of defects.

**8223.73 Skiving Machine Operator; Skiver (Abrasive)** operates skiving machine to remove abrasive grain from abrasive coated cloth and bevel edges for joining ends to form endless band. Starts machine and feeds ends of abrasive band by hand through revolving grinding wheel to remove coated abrasive grains to reduce thickness of material; checks skiving done at ends and ensures that they are uniform; repeats skiving if necessary. May oil and clean machine.

**8223.74 Belt Press Operator; Pressing Machine Operator (Abrasive)** presses glued ends of abrasive coated cloth or paper belt by pneumatic pressing machine to form endless belt. Collects abrasive coated material; applies glue over skived ends of belt with hand brush; joins one end of belt over another carefully to form continuous and endless belt without ridges at joint; sets pneumatic pressing machine and places joined end of belt over platten of machine; operates foot pedal of machine to lower upper ram of machine and press joint of abrasive belt at set pressure; removes material when press opens up automatically after set period. May trim edges with hand scissors.

**8223.75 Roll Winding Machine Operator; Take Down Machine Operator (Abrasive)** Operates roll winding machine to wind abrasive paper or cloth coming in continuous lengths, into rolls of prescribed size. Fixes empty spool to machine and clamps it securely; draws by hand, roll of paper or cloth coming from drying chamber and rolls it over empty spool giving few turns for holding it firmly; starts machine and observes winding of abrasive cloth or paper on spool; stops machine after roll attains prescribed size; removes rolled material from machine using hoist equipment and continuous operation with new spool. May oil and clean machine.

**8223.76 Sheet Cutter (Abrasive); Abrasive Sheeting Machine Operator** cuts roll of abrasive paper or cloth into sheets of prescribed sizes using sheet cutting machine fitted with rotating knives. Loads roll of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

abrasive paper or cloth on machine frame either manually or by hoisting equipment; draws free end of abrasive paper or cloth roll and passes it over feed rolls of machine; adjusts guides on scale to obtain specified length of sheet, screws guides to hold sheets in position sets knives or cutting blades to machine and adjusts them to cut material; starts machine and observes cutting operation and removal of cut pieces over conveyor system; stops machine if paper gets stuck up, releases block and re-starts machine. Replaces blunt knives with sharp ones when required. May clean and oil machine.

**8223.77 Slitting Machine Operator**

**(Abrasive)** Operates slitting machine to cut roll of abrasive paper or cloth into smaller sizes or rolls of lesser width and length. Loads roll of abrasive paper or cloth on machine frame either manually or by means of hoisting equipment; draws free end of paper or cloth roll by hand and passes it over feed rolls of machine; sets and adjusts machine for speed, tension of paper or cloth and slitting of roll to required width and length; starts machine and observes slitting of roll to required widths and winding of slit material into rolls over collapsible spindle set on opposite side of machine; stops machine on completion of operation and removes smaller wound rolls an collapsible spindle or spool from slit roll; repeats process; keeps record of output given. May clean and oil machine.

**8223.78 Clicker Press Operator**

**(Abrasive)** operates power press to cut pieces of abrasive material to desired specifications. Sets die in machine in which material is to be cut; starts machine, feeds abrasive coated paper or cloth into machine and ensures that operation proceeds correctly and makes necessary adjustment to machine collects cut pieces from machine and bundles them. May oil and clean machine.

**8223.79 Splint Feeder (Match)** feeds match splints in automatic machine to insert them in grooves or holding device for dipping splint tips with match-head composition and dry them in drying chamber. Brings trolley containing levelled splints from levelling section; takes wooden tray containing levelled splints from trolley and feeds

levelled sticks in magazine of machine by transferring contents of wooden tray into it, keeping them arranged in same manner and position; dresses levelled splints in magazine by tapping with wooden pad and removing broken, uneven or cross splints; watches feed or flow of levelled splints into machine where stick feeding device automatically inserts each splint into groove or holding device of continuous rotating conveyor chain; keeps magazine continuously full by supplying levelled splints from wooden trays; collects fallen out splints from floor or pit and deposits them in basket to be taken to levelling section; pushes empty trolley and leaves it at levelling section; maintains place clean and tidy. May operate machine and collect fully dried matchstick.

**8223.80 Splint Drying Chamberman (Match) Match Splint Drying Machine Attendant**

tends drying and polishing machine to dry and polish match splints. Collects match splints from bins and spreads them evenly in wooden chamber tray; opens bottom door of drying chamber, pushes chamber tray containing splints into its moving platform and closes chamber door; starts machine to blow steam or hot air to heat furnace to desired temperature by regulating thermostats or by adjusting dampers; opens top door of chamber and removes chamber tray containing dried splints after specified length of fine; feeds dried splints into hopper of adjacent polishing chamber for getting dried splints polished in its revolving drum; pokes hopper of polishing chamber with wooden stick to remove chocking and to push dried splints inside revolving polishing drum. May carry splints from godown to bins.

**8223.81 Levelling Machine Attendant (Match); Leveller (Match)**

operates levelling machine to fill wooden trays with horizontally levelled splints. Place, trolley with empty wooden trays near machine, arranges them in machine frame with mouth turned towards hopper of levelling machine; locks levelling machine frame over empty wooden trays securely; fills match splints into hopper of levelling machine; spreads splints evenly by hand in hopper of machine; starts machine to agitate hopper, side to side to fill empty trays with splints horizontally; removes wooden trays filled with levelled



## NATIONAL CLASSIFICATION OF OCCUPATIONS

splints and places them on rack of trolley for further processing. Oils and greases machine.

**8223.82 Bottom Sealer, Flask** seals bottom of outer bottle of vacuum flask over gas burner by heating, opening and fusing molten glass. Places assembled flask (smaller bottle inside outer bottle) over gas burner to heat bottom of outer glass; rotates bottom of outer flask in flame of bunsen burner to melt glass; shapes bottom to uniform shape by pulling gently molten glass by tongs and turning flask anti-clock-wise for uniform sealing of bottom. Collects long glass tube from container and fixes it to bottom portion of sealed glass flask by heating it over gas burner and creating continuity of hole between outer glass and glass tube, for silvering and vacuum sealing.

**8223.86 Fireworks Maker** makes different varieties of fireworks by grinding, mixing chemical ingredients and filling them with charge powder in paper cases and small mud and tin containers to produce various colour and noise effects when charged. Collects fireworks materials in required quantities. Grinds chemicals separately to fine powder either manually or in grinding or pulverising machines; weighs and mixes chemical powders in prescribed proportions according to formulae to produce various colour and noise effects; prepares or obtains mud or tin containers of required size and shape and fills them by compressing charge by mallet and drift or by hydraulic press; fixes fuse, wick or touch paper to charge when ignited, seals container, pastes coloured and decorative papers around to give finish and keeps them to dry in sun. Packs finished product in convenient paper or card board boxes pasted with tread for seal. Keeps place clean and tidy. May pack finished goods in cases. May fire and test fire-works in open fields. May operate grinding machine or punching machine if engaged, in mixing ingredients or making amorphous caps.

**8223.90 Metal Finishing, Plating and Coating Machine Operators, Other** perform number of routine and low skilled tasks, such as fixing components in jigs, removing component from jigs, degreasing and cleaning components by scrubbing,

drying them in saw dust, lifting materials from acidulated water tank, feeding sheets in roller and furnace for drying and heating of tin plate etc, and are designated as Jigger Un-Jigger, Plate Helper, Drier, Water Boy, Norton Roller Feeder, etc. according to nature of work done.

### 8224 PHOTOGRAPHIC PRODUCTS MACHINE OPERATORS

Photographic products machine operators operate and monitor equipment which makes photographic film and paper, and which processes exposed photographic film and make prints.

**8224.10 Printing Machine Operator, Photographic** operates automatic film printing machine to print photographs from negative film. Examines negative film for contrast and for deciding on type and grade of printing paper to be used; selects appropriate photographic paper; places negative film in film-holder of machine; sets machine for light conditions and for time of exposure; feeds roll of printing paper into machine; starts machine by operating switches; observes machine, exposing negative and printing paper to light for specified time; delivers exposed prints for developing. Collects exposed prints and develops them in chemical baths (developing and fixing solutions) for varying but timed periods; washes developed prints in cold running water; dries wet prints under shady conditions. May fit colour filters for taking colour prints. May repair and overhaul printing machine.

**8224.20 Film Developing Machine Operator; Developer, Films** operates film developing machine and develops exposed film in series of chemical and water baths in dark room, dries film in automatic drying unit, and prepares transparent black and white negative or positive film. Receives exposed film and notes instructions regarding nature of exposure and developing conditions to be followed; loads exposed film roll in magazine of developing machine; mixes, or supervises mixing of, developing chemical baths in prescribed proportions; gets tanks of machine filled to prescribed level with chemical solution and water, as required; regulates and maintains correct

## NATIONAL CLASSIFICATION OF OCCUPATIONS

temperature of developing solution; draws end of film from magazine and feeds it through feed roller of machine. Starts machine, observes and regulates running of film roll, drawn over rollers, and passing through series of guides, immersed in developing solution and fixing baths; adjusts speed of machine and runs it for set period until developed film, emerging from chemical bath tank, is rinsed while passing through cold water tank to wash off fixing solution. Maintains temperature of drying chamber at continuously set level, and dries negative; winds developed and dried film automatically on reels. Supervises cleaning of water and chemical tanks periodically and ensures re-filling of tanks with fresh chemical solutions. May develop and prepare coloured film.

**8224.30 Photographic Film and Paper Maker** performs one or more hand or machine tasks in making of photographic film and paper. Mixes gelatine, water and chemicals in kettle, heats for prescribed period and allows mixture to cool, to form emulsion jelly. Melts and ripens emulsion jelly prior to coating, controlling temperature to produce emulsion of required viscosity and adding further chemicals according to type of coating required. Operates coating machine, feeding film or paper base material into machine, which moves it on rollers through liquid emulsion, over chill roll or into cooling chamber to set emulsion, and slowly through drying tunnel supplied with warm filtered air. Operates rotary slitting machine which slits film or paper into narrow width and automatically re-reels each width. May be designated according to type of work performed.

**8224.40 Linoleum Maker** performs one or more tasks in making of linoleum. Mixes materials such as oil, rosin and ground cork in mixing machine to produce linoleum cement. Operates calender machine which spreads linoleum cement on burlap or hessian. Stores coated cloth in heated rooms where it is left for several days to dry and harden. Operates rotary machine which prints patterns on linoleum by means of engraved or cut hollow rollers fed with various oil colours. Passes linoleum through machine which trims edges and cuts it off to desired length. Examines finished linoleum

for defects. May be designated according to tasks performed.

**8224.90 Photographic Products Machine Operators, Other** include workers who operate and monitor equipment which makes photographic film and paper, and which processes exposed photographic film and make prints not elsewhere classified.

### 8229 CHEMICAL PRODUCTS MACHINE OPERATORS n.e.c.

This Family covers, chemical products machine operators not elsewhere classified in Group 822, Chemical products machine operators. For instance here should be classified those who operate and monitor machines which produce chemical-based products such as linoleum, candles, halogen gases and related items.

**8229.10 Laboratory Attendant; Laboratory Bearer** assists **Demonstrators** and **Laboratory Assistants** in their routine tasks for purposes of analysis, sampling, dissection, testing, demonstration etc. as directed. Receives instructions from **Demonstrator** or **Laboratory Assistant** as appropriate. Sets apparatus and instruments, gets materials ready for dissection, dissolves salts, prepares standard solutions, operates simple machines and appliances, makes battery connections, etc. according to instruction, nature of work and type of laboratory in which engaged. May prepare chemical reagents and do routine testing and weighing under guidance. May assist in demonstration of experiments to students.

**8229.20 Agarbati Maker** makes scented agarbatis to give pleasant fragrance when lighted. Collects thin bamboo splints of required size. Mixes saw dust, gum and coloured powder of desired shade in specified quantities with water to make thick pulp; adds scent or sandal wood powder to pulp for desired fragrance and rolls splints with required quantity of pulp on wooden plank smeared with thin oil to prevent pulp sticking to plank; removes pulp coated splints and dries them in sun; packs dried sticks in convenient packets or makes them into bundles of desired weight or number with trade labels wrapped for sale. May prepare incense powders and cubes for

## NATIONAL CLASSIFICATION OF OCCUPATIONS

burning in religious ceremonies and other occasions.

**8229.30 Pencil Maker** performs one or more hand or machine tasks in making of wood-encased pencils. Weighs and mixes material such as graphite, china clay, chalk, colouring pigment or dyestuff, and water according to formulae, and passes mixture through rollers of grinding or milling machine; places milled graphite or clay mixture in cylinder of hydraulic extrusion press and starts machine which presses mixture through extrusion dies, thus forming pencil leads; stores extruded leads in drying chambers and cuts dried leads to pencil lengths, using gauze and hand lever knife; packs cut leads in furnace chambers and treats them with controlled heat; impregnates baked leads by placing them in container which suspended and partly submerged in molten wax or grease; places wood slats into automatic machine which cuts grooves on one side and applies glue to grooved side; places leads in grooves of glued slat, covers this with other slat and presses them together; feeds pressed slats into automatic machine which shapes out pencil, applies paint, stamps maker's name and other identifying data, gives final polish; examines finished pencils for defects. May be designated according to type of work performed.

**8229.40 Assembler, Marking Devices (Pen & Pencil)** performs any combination of following duties to assemble stencil marking and ink applying devices: Selects parts according to specifications. Aligns parts following guides, such as contours, edges, slots, or fastening devices. Joins parts manually or using hand tools, such as wrenches and power screwdrivers, or positions parts on holding device of machine bed under ram, and moves lever to lower ram, joining parts. Performs other tasks, such as cleaning parts, using air gun; fitting ink chambers; and positioning marker in holder of air pressure device that tests marker for leaks in ink valve and chamber.

**8229.90 Chemical Products Machine Operators, Other** include those who operate and monitor machines which produce chemical-based products such as linoleum,

candles, halogen gases and related items not elsewhere classified.

**823 RUBBER AND PLASTIC PRODUCTS MACHINE OPERATORS**

Rubber and plastic products machine operators operate and monitor machines, which knead and blend rubber and rubber compounds, and produce various components and products and products from natural and synthetic rubber and plastics.

**8231 RUBBER PRODUCTS MACHINE OPERATORS**

Rubber products machine operators operate and monitor machines, which knead and blend rubber and rubber compounds, and produce various components and products, from natural and synthetic rubber, such as moulded footwear, domestic articles, insulating materials, industrial accessories, or tyres for bicycles, automobiles, tractors, aircraft and other vehicles.

**8231.10 Calender Machine Operator, Rubber** operates calendering machine to convert rubber into rubber sheets by rolling process. Adjusts steam valves to regulate heat of machine rollers, judging heat by touch and by observing reaction of rubber; sets thickness gauge by turning hand-wheels; starts machine, feeds it with chunks of rubber; tests thickness of product with gauge and, if necessary, makes suitable adjustments; supervises helpers who load and unload material from machine. May attend to running repairs. May work as Calenderer, Rubberised Fabric.

**8231.15 Cord Dipping Operator** operates a machine to prepare rubberised fabric by passing fabric through solution of latex and other chemicals and dries it over preheated drums. Places roll of material on machine feeder; threads end of roll through machine rollers and affixes it to winder at finishing end; ensures that chamber of machine is filled with required quantity of latex solution, chemicals etc., for treatment of fabric; starts machine and adjusts tension of fabric and pressure of rollers; regulates temperature of drying drum; observes coating of fabric on one or both sides with rubber solution and then after threading over

## NATIONAL CLASSIFICATION OF OCCUPATIONS

preheated drums for drying; tests thickness of product with a gauge and makes necessary adjustments; removes solution coated dried roll of fabric from winder; supervises helpers who load and unload material from machine. Oils and lubricates machine. May operate calendering machine.

**8231.20 Extruding Machine Operator (Rubber)** operates a machine in which compounded rubber is extruded through heated die fixed to machine head to form continuous shaped strip. Selects die and fits it to machine; turns steam valve to heat die to required temperature; starts machine; adjusts machine for specified extrusion speed by means of gear lever or any other device and fixes proper-size dies to machine to get specified profile; adjusts centering screws in case of tubes, to get uniform wall thickness; feeds rubber stock into machine by hand or conveyor; verifies dimensions of extruded rubber with gauge, calipers and rubber; adjusts controls to synchronize speed of conveyor belt with speed of extrusion of rubber. May be designated according to product extruded as Inner-tube Tuber-machine Operator (Rubber tyre and tube), Hose Tuber Machine Operator (Rubber goods).

**8231.25 Rubber Fabric-Cutting Machine Operator; Fabric Cutter, Rubber** cuts strips of rubberised fabric on bias for use in building up plies of pneumatic tyres to give added strength and flexibility to tyres. With aid of helper, lifts roll of canvas lined, rubberised fabric on rack of machine; passes end of fabric over guide rolls and on cutting table; adjusts tension of fabric over guide rolls. Measures with rule and sets cutter at desired points; starts machine, adjusts speed of feed and cutting action and removes and counts strips; checks fabric pieces periodically to determine conformity to specifications and makes necessary adjustments to machine; oils machine bearings; sharpens circular knife, using abrasive stone. May operate slitting machine.

**8231.30 Slitting Machine Operator, Cycle Tyre; Fabric Tearing Machine Operator, Cycle Tyre** cuts rolls of rubberised fabric to required widths over slitting or tearing machine. Mounts roll of rubbercoated fabric

to machine shaft using hoisting equipment; adjusts rotary knives to cut stock to desired widths using a wrench; threads end of roll of stock through guides of machine with aid of helper; adjusts guide rolls to give proper tension to fabric roll; starts slitting machine, catches end of cut strips and starts them on power driven shells or spools. In operating Tear off Machine, tears by hand required width of fabric from end of roll, passes each end over opposite rolls (top batch and bottom batch) so that fabric is automatically torn off and wound in separate rolls by rotation of rollers in opposite direction; observes machine cutting and winding cut strips and regulates tension of winding device by turning wheels; lifts off rolls of cut stock. Oils and lubricates machine.

**8231.35 Bead Maker, Rubber Tyre; Beading Machine Operator; Bead Builder** builds up rubber - covered wire portions of beads in bead forming machine. Selects desired size form and mounts it on power driven shaft with wrench; places end of single strand of rubber-covered wire under small clamp on form; steps on control pedal and allows form to revolve until specified number of wire strands have been laid in groove of form; cuts wire with wire-cutting pliers, removes formed wires, and wraps small piece of rubber taps around ring to hold loose ends. May perform one or other of above operations and be designated accordingly as **BEAD CUTTER, BEAD WELDER, BEAD GRINDER, BEAD NIPPER, BEAD SOLDERER, and BEAD WRAPPER**. May cover beads with rubberised fabric. May oil and lubricate machine parts.

**8231.40 Profiling Operator, (Cycle Tyre)** warms rubber compound between mill rollers and passes it through profile bowls for giving shape to cycle tyre tread rubber. Adjusts steam valves to regulate heat of profiling machine rollers, judging heat by touch and observing reaction of rubber; turns hand wheels to adjust distance between rolls; inserts chunks of compounded rubber between rolls to feed machine or positions conveyor feeder in front of rolls that carry strip of rubber from warm up mill for continuous feeding; starts machine, observes material threading between mill rollers on to profile bowl and take off conveyor; adjusts

## NATIONAL CLASSIFICATION OF OCCUPATIONS

knives to cut material to specified length; tests thickness of product with gauze and makes necessary adjustments; removes cut pieces and examines for defects.

**8231.45 Finishing Operator, Rubber Tyres; Tyre Finisher** cleans and paints tyres, tests for balance and conductivity of tread on testing machine. Mounts tyres on rotating spindle; revolves spindle and examines visually for side wall cracks, foreign material and blisters; feels beads to detect kinks and feels inner surface of tyre to detect spread cords, ply separations or buckles; trims toe of bead and mould overflow with knife; removes tyre and positions it on balance table to check conformance to balance specification; releases lock that permits balance table to float freely on mounting and bubble gauge to function; observes bubble gauge to determine if tyre balance is within specified limits; marks tyre where gauge indicates lightest area, for location of inner tube valve; marks defective tyres and affixes labels to acceptable ones.

**8231.50 Sealing and Valve Fitting Operator, Tube and Tyre Building** punches holes in inner tubes for valve stems by machine, inserts valve stem from inside of tube into hole, cuts tube to length and seals cut edges in press. Places one end of tube over arm like table of machine; presses pedal forcing punch through tube; removes tube from machine, inserts valve stem from inside of tube into hole, slips washer over outer end of valve stem and turns locknut on stem with wrenches; assembles ovalshaped rubber and rubberised pieces to build up pad placed over section of inner tube where valve stem is placed, following plant specifications; cuts tube to specified length, bevels edges at each end to prepare them for splicing in power driven rotary knife that automatically cuts bevel; brushes rubber cement or acid on each end of tube (inside skived edge has been turned back over tube to expose splice); joins stock together to form tube by lapping and bonding edges with hand roller or press. Removes tube for curing.

**8231.60 Finishing Operator, Rubber Tubes** examines cured rubber inner tubes for defects, such as cracks, blisters and thin spots. Inflates inner tube to facilitate

inspection, using airhose; examines tube for defects, specified brand and valve while revolving on turn table; marks defective tubes and places them in storage area for removal to repair section; installs cores and lock nuts in valve stems of acceptable tubes, using electric screw driver; inserts valve stem into fixture and pulls lever to bend valve.

**8231.65 Sheet Maker, Rubber, Smokehouse Man** prepares rubber sheets from tapped rubber milk and smokes them to required colour and transparency. Collects tapped rubber milk, progressively sieves it, using different sieves; coagulates it using acids; washes with water letting it drip dry in air; rolls it into sheets using mechanical or manually operated rollers. Collects rolled rubber sheets, spreads them evenly on racks in smokehouse; treats rolled sheets with hot smoke over prescribed temperature in closed smokehouse, changing position of sheets from place to place in the smokehouse, removing the rolled sheets after smoking for specified period till sheets have acquired correct colour and transparency.

**8231.67 Moulder, Rubber; Rubber-Moulding Press Operator** moulds rubber in a steam or electrically heated press to form various products, such as gaskets, doll parts, and shoe heels. Places uncured rubber between upper and lower dies of mould; inserts mould in press; turns valve to lower ram on mould and to apply pressure and steam heat simultaneously for a specified time; removes mould from press, opens die and removes formed pieces with tongs or by hand; hangs formed articles on racks. May operate press in which rubber is injected into moulds. May be designated according to articles pressed, as **RUBBER HEEL AND SOLE PRESSMAN**.

**8231.70 Calenderer, Rubberised Fabric** warms rubber compound between mill rollers, passes fabric between calender rollers, feeding with rubber to give rubber coating on surface of fabrics. Adjusts steam valves to regulate heat of machine rollers; charges fabric to be rubber-coated between rollers; sews ends of cloth rolls together and threads fabric through rollers to form continuous sheet; inspects sheet to detect turned edges, material defects; smoothens

## NATIONAL CLASSIFICATION OF OCCUPATIONS

wrinkles and repairs holes, faulty seams, or frayed edges; starts machine and feeds it with chunks of rubber; tests with gauge thickness of rubberised fabric and makes necessary adjustments; examines thickness of coated sheets. May work as Calender Machine Operator, Rubber.

**8231.72 Hose Maker (Rubber Goods)** makes rubber hoses by wrapping plies (layers) of rubberised fabric and gum rubber stock on rubber tubes by means of wrapping machine and vulcanising pan. Places mandrel and precut rubber tubing on workbench; swabs mandrel with soap stone solution and pushes it into rubber tubing; adjusts guides on machine to accommodate ply stock of specified width; positions mandrel on machine rollers and swabs rubber tubing on mandrel with rubber cement to provide adhesive surface; positions precut ply stock between guides and depresses pedal to wind and roll ply stock around rubber tubing; cements band on hose in specified location; examines hose for wrinkles and loose plies, smoothens wrinkles and presses plies together, using fingers and roller; measures dimensions of hose with rule, calipers, and gauges, and cuts off excess rubber with knife; trims and cements tubing to seal raw ends of ply stock; wraps fabric around hose to prepare hose for curing. May wind wire between plies for reinforcement of hose. May clamp or cement metal fittings to ends of hose using rubber cement and hand tools. May wind rope around hose, on corrugated mandrel to hold hose against contours of mandrel during cure.

**8231.74 Latex Worker** tends machine that dips forms into tanks of liquid latex to produce rubber goods, such as gloves, balloons, teats, valve tubes, and finger tips. Lifts form board from conveyor and fastens it to machine bed with hinge clamps and slide bolts; inverts bed by hand and moves lever to submerge forms in tank of latex solution according to specifications; raises and rocks bed to create movement that dries coagulant or equally distributes and sets latex on forms; lifts boards and applies carbowax on latex coated mould and carefully removes mould from latex coating by hand; adds solutions to tanks with dipper

to speed drying time or replenish supply of specified level.

**8231.76 Latex Foam Cushion Maker** moulds foam rubber products such as cushions, mattresses from latex by reducing its ammonia content, mixing and stirring it with chemicals and pouring and settling mixture in required mould in vulcanising tank. Pumps latex into tank of machine; turns valve to heat steam jacket of tank to specified temperature and observes gauge; sets timer and starts machine agitators that induce evaporation of ammonia; turns valves to regulate flow of treated latex and air into frothing tank to mix air with latex; determines density of latex mixture by weighing out specified quantity of mixed latex from frothing tank into holding tanks; weighs and pours specified amount of latex and chemicals in mixing machine and starts machine that mixes ingredients; places mould under discharge spout of mixing machine and fills mould with mixture; cures filled moulds by hydraulic press to form products; removes product from mould, squeezes out water by rolling process and finally dries it on spreading machine or drying chamber. May mix ground rubber particles with latex, using mixing machine and fills moulds with mixture.

**8231.80 Tyre Builder; Tyre Maker** sets up and operates drum - type machine to build up pneumatic tyres. Positions ply stitcher rollers and drum according to width of stock, using hand tools and gauges; rubs cement stick on drum edge to provide adhesive surface for plies; pulls plies from machine spool and aligns with edge of drum; depresses pedal to rotate drum, winds specified length of ply on to drum, tears ply from spool, and splices ends; brushes solvent on to ply to ensure adhesion and repeats process as specified; alternating direction of each ply to strengthen tyre; pushes switch to move bead setters that press prefabricated bends on to plies and to position rollers that turn edges of plies under and over beads; winds chafers and breaker on to plies; aligns tread with guide, starts drum to wind tread on to plies; and splices depresses pedal to collapse drum and lifts tyre. May turn ends of plies under and over beads with steel rod and place it to one side in readiness for moulding and vulcanising (curing).

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8231.81 Tyre Moulder** shapes unfinished, new or reconditioned, pneumatic tyres in press mould. Places air or water bag of specified size inside unfinished tyre using tire spreading device and clamps, clamps tyre into mould; inflates bag with air or hot water under pressure to force tyre to shape of mould; places mould in vulcanising oven, regulates pressure and steam heat to vulcanise tyre; removes tyre from mould when vulcanising is complete and extracts air or water bag. May be designated according to the type of tyre moulded such as **TYRE MOULDER CYCLE; TYRE MOULDER, AUTOMOBILE; TYRE MOULDER TRUCK.**

**8231.83 Band Builder, Tyre Building; Pocket Maker; Ply Bander; Tyre Bander** operates machine to glue together bands of ply stock for use in manufacture of rubber tyres. Positions ply stock on drum and aligns with sides of drum; depresses pedal to rotate drum while guiding ply on drum to form band; swabs wrinkles with benzol and smooths by hand; splices ends of plies by pressing with fingers; repeats operation, reversing angle of splice until specified number of plies are formed into band; depresses pedal or pulls lever to move rollers against band and rotates drum to band plies; pushes pedal to collapse drum and pulls band from drum. May roll gum stock between plies and cut with shears. May wrap canvas liners around bands to prevent adhering during storage. May measure ply stock with table marker and tear stock on bias to specified length to form banding strips.

**8231.84 Trimmer, Tyre Building; Tyre Trimmer, Hand** trims excess rubber formed on tyres during curing process. Places tyre on turn table or machine driven rollers; holds knife at angle to tyre to avoid cutting tyre and turns table manually or mechanically to cut excess rubber; lifts tyre from table or pulls lever to remove it from rollers. May trim motor, "giant", aero, cycle tyres, etc. May inspect finished tyres for defects and marks them with chalk for rectification or rejection.

**8231.85 Tyre Repairer; Tyre Repairman** repairs or remedies defects in cured tyres by retreading, vulcanising or other processes.

Examines and probes tyre with awl (a small pointed tool for making holes) to determine extent of defect; buffs blemishes from tyre, using portable buffer; cuts out rubber around cracks and buffs area to prepare it for patching; cements gum rubber patch to cut-out to build up defective area; rolls down patch with hand stitcher and punctures air pockets in patch to remove trapped air; buffs and trims excess rubber from tyre; replaces treads by cutting defective tread from plies, buffing ply surface, and cementing new tread on plies. May tend vulcanizing machine to cure patch on tyre for specified time. May be known as **RETREADER, TYRE**, if engaged in tyre retreading.

**8231.86 Moulder, Rubber Tube** inflates joined raw inner tube with air, fits it in press mould and heats tube and mould to required temperature by means of steam for vulcanisation. Selects suitable shaping rim to correspond to mould in press; sets built tube in rim with its valve stem fitted in slot of rim; inflates tube with air hose to bring it to its normal shape; caps valve stem to hold air in tube; removes tube from shaping rim, places it inside mould; removes valve cap, connects hand grip to valve stem, and injects air in tube by pressing foot pedal to hold tube firmly inside mould; checks curing pot (oven) to ensure that covers and all connections are in place; operates hydraulic ram inside pot so that moulds containing inner tube are held firmly in place; starts clock to time period of vulcanising and controls temperature and flow of steam into pot; watches gauges and makes necessary adjustments to ensure that correct vulcanising conditions are maintained; pulls moulds when vulcanising is complete; removes cured tubes from moulds and places them on hook provided.

**8231.87 Cycle Tube Reverser** reverses cycle tubes by pneumatic system for grinding. Carries mandriles (a rod used to retain the cavity in rubber tube) with vulcanised tubes to reversing stand; inserts one end of mandrile into airchamber tube on stand; starts compressor to permit air into air-chamber tube; pulls by hand one end of rubber tube on mandrile into air-chamber tube; closes other end of mandrile by hand and pulls out mandrile by hand to separate

## NATIONAL CLASSIFICATION OF OCCUPATIONS

tube from mandrile in reverse position; removes reversed tubes to joining section.

**8231.88 Rubber-Stamp Maker** makes rubber stamps on order and mounts them for use. Composes metal type to match copy; locks type in chase and mounts chase on bed of vulcaniser; mixes french chalk, china clay, Plaster of Paris, dextrine and water and places mixture in metal moulding plate; reverses moulding plate over chase to receive type impression; dries compound in oven; covers moulded impression with cut to size piece of uncured rubber; clamps rubber-covered mould under steam chamber of vulcaniser until rubber is cured; removes cured rubber from mould, trims away excess rubber, and mounts stamp on wooden or metal backing with rubber cement.

**8231.90 Rubber and Rubberised Product Makers, Other** include all other workers engaged in making different types of rubber and rubberised products, not elsewhere classified.

### 8232 PLASTIC PRODUCTS MACHINE OPERATORS

Plastic products machine operators operate and monitor machines, which knead and blend compounds to obtain plastic materials and which make various plastic components and articles.

**8232.10 Tablet Machine Operator, Tableting Operator (Plastics)** tends tablet-machine that compresses plastics powders into pellets or biscuits of specified weight and shape for use in moulding plastics products. Sets appropriate punch on cylinder and die on die setting plate; feeds hopper of machine with desired blend of plastics powders; opens gate valve to control flow of powders from hopper into machine. Turns steam valve to regulate temperature of machine according to ammeter gauge, and adjusts die pressure to attain specified hardness of pill. Examines compressed tablets to ensure that they are of required weight, size and shape. May clean, change and adjust die. May operate mixing, sieving or milling machine. May be designated, according to type of machine used, as **ROTARY PERFORMER; SINGLE STROKER PERFORMER.**

**8232.15 Laminating Press Operator (Plastics)** sets and operates laminating press to heat and press plastics or plastics impregnated material into solid laminated sheets. Selects metal plates according to finish desired. Weighs and assembles sheets of impregnated material and places assemblies between metal planishing plates; slides plates into platens of hydraulic press; moves controls to heat press to specified temperature and compress assemblies between plates; removes plates from platens after specified time and strips plastics sheets from metal plates, using knife; examines sheets for defects. Cleans metal plates, using cloth, solvents, or scrapers or by dipping plates into vats of hot water, using chain hoist. May adjust heat and pressure controls.

**8232.18 Extruding Machine Setter (Plastics)** sets and adjusts die and extrusion machine to form dry or dough-like plastics into continuous rod, tube, strip or similar shape of desired dimensions. Installs dies, machine screws and sizing rings, using hand tools; couples hose to die holder to circulate steam, water, air or oil to die; fills machine hopper with materials, using conveyor auger or stuffs rolls of plastic dough into machine cylinders; starts machine and sets controls to regulate vacuum, air pressure, sizing rings and temperature and synchronizes speed of extrusion with pulling rolls; examines extruded sample product for defects, such as wrinkles, bubbles and splits. Measures extruded articles for conformance to specifications using micrometers, calipers and gauges and makes adjustments by regulating speed and weight controls or manipulating hot and cold water, air, oil or steam valves and observing gauges so as to obtain forms of specified dimensions.

**8232.20 Extruding Machine Operator (Plastics)** operates machine to extrude thermoplastic materials to form tubes, rods and film, according to specifications. Weighs and mixes pelletized, granular, or powdered thermoplastic materials and colouring pigments in tumbling machine set by Extruding Machine Setter (Plastics) couples hose to die holder to circulate steam, water, air or oil to die; fills machine hopper with mixed materials or stuffs rolls of plastic dough into machine cylinders; starts machine



## NATIONAL CLASSIFICATION OF OCCUPATIONS

and synchronizes speed of conveyor belt with speed of extrusion through die; examines extruded product for defects, such as wrinkles, bubbles and splits; measures extruded articles for conformance to specifications, using micrometers, calipers and gauges and adjusts speed and weight, controls or turns hot and cold water, air, oil or steam valves to obtain product of specified dimensions. May reel extruded product into rolls of specified length and weight. May oil and clean machine.

**8232.25 Injection Moulding Machine Operator (Plastics)** sets up and operates injection-moulding machines to cast products from thermoplastic materials. Installs dies on machine, according to work order specifications, using clamps, bolts, and hand-tools; sets thermostatic controls to obtain specified moulding temperature; dumps pre-mixed plastic powders or pellets into hopper and starts machine; pulls lever to close dies and inject into dies to cast part; removes finished product from dies, using hand tools and trims excess material from part using knife. May mix thermoplastic materials and colouring pigments in mixing machine, according to formulae. May grind scrap plastic into powders for reuse.

**8232.30 Compression Moulding Machine Operator (Plastics)** sets up and operates compression moulding machines to mould plastics products by heat and pressure according to specifications. Installs dies on press, using clamps, bolts, and hand tools and coats dies with parting agents; sets thermostat to regulate temperature of dies; weighs premixed plastic compound and pours compound into die well, or spreads fabric on die and dumps compound over fabric; pulls lever to lower hydraulic ram that compresses compound between dies to form and cure part; removes cured part from mould, using hand tools and airhose. May mix catalysts and colouring pigments with plastic compound, using paddle and mixing machine. May operate compression moulding machines to form product under pressure only and be designated **COLD - MOULDING-PRESS OPERATOR**.

**8232.35 Bottle Blowing Machine Operator (Plastics)** feeds thermo-plastics material into hopper and operates buttons and levers of

bottle blowing machine to extrude tube like material and pumps air to shape it into form of mould. Weighs and mixes pelltized, granular, or powdered thermoplastic materials and colouring pigments in tumbling machine according to formula; installs dies, machine screws, sizing rings, using hand-tools; and couples hose to die holder to circulate steam, water, air or oil to die; fills machine hopper with mixed materials or stuffs rolls of plastic dough into machine cylinders; starts machine and sets controls to regulate vacuum, air pressure, sizing rings and temperature; depresses lever of machine and ensures that parison tube reaches entire length of mould or die; cuts ends of tube with scissors near nozzle and blows air into mould by operating pump; opens moulds and removes finished article. Repeats process.

**8232.40 Vacuum Plastic-Forming-Machine Operator** tends machine that moulds thermoplastic sheets into products, such as automobile pillar posts, nose pieces, rear quarter-panel covers, and toys. Places plastics sheet on top of mould, positions sealing frame around sheet, and fastens frame to rim of mould with clamps. Pushes button to start machine that heats sheet, draws it into mould to form product, and sprays product with cold water or air to harden it. Removes product from mould and reloads thermoplastic sheet into machine. May trim excessive moulding material from products, using knife, scissors, or bandsaw. May set up machine to form products.

**8232.45 Embossing Machine Setter (Plastics)** sets up embossing machine that stamps and embosses design on plastic sheets. Installs and locks embossed plate in chase and locks chase in bed of press. Lays piece of card board on machine bed under plate and impresses it with plate. Cuts out impression and glues it to bed under plate adjusting table in order that impression and plate are in exact alignment; sets guides to hold plastics sheet in position under plate and adjusts table height to impart correct depth of impression. Starts machine and places sample piece of plastics sheet in guides and pushes it under embossing plate. Inspects embossing on sample for correct depth of identification and correct faults as necessary.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8232.50 Embossing Machine Operator (Plastics)** feeds and operates embossing machine to stamp and emboss designs on plastics sheets. Installs engraved embossing roller, pressure roller and roll of plastics sheets to be embossed in machine by hand or using hoist; manipulates lever or clutch to regulate pressure between rollers; threads plastics sheet through machine and regulates flow of steam into rollers to counteract curling of sheet and to obtain desired depth of embossing or surface shine to sheet; starts machine, examines embossed sheet and makes adjustments to secure desired results; adjusts rotary cutting device to cut sheets or tend winding machine to wind embossed sheet into rolls. May feed plastics sheets to machine.

**8232.60 Printing Machine Operator; Printer (Plastics)** sets up and operates printing machine to print colour designs on rolls of plastics material. Positions and clamps printing cylinder on press, using hand tools; pours inks into ink pans and threads plastics film through press rolls; starts press and turns wheels to adjust pick up, transfer, and printing rolls, turns rheostats to regulate speed and feed of press, and temperature of drying box, examines printed sheet to detect defects, such as wrinkles, tears, smeared printing, and uneven colour distribution, cleans and oils press, and repairs or replaces broken or worn parts of press, using hand tools. May set print on printing cylinder and blend coloured inks, according to job order.

**8232.62 Button Maker** performs one or more hand or machine tasks in making of buttons. Cuts button blanks from various materials such as composition or vegetable material, ivory or pearl by hand or with automatic cutting machine; removes rough edges, levels back and front of button blanks and reduces them to uniform thickness using automatic machines; makes holes in buttons by means of automatic drilling machine; cleans buttons prior to polishing by dipping them in chemicals and wiping them dry; polishes buttons by means of revolving buffer; examines finished buttons and rejects faulty ones. May be designated according to job performed such as **BUTTON HOLE DRILLING MACHINE OPERATOR, BUFFING MACHINE OPERATOR.**

**8232.65 Mould Setter (Plastics)** sets up and adjusts compression, injection and similar type of machines used to mould plastic materials to specified shape. Positions assembled mould on press bed of moulding machine or bolts matrix of unassembled mould to bed and aligns die (attached to ram) with matrix; adjusts stroke of ram, using hand tools. Connects steam, oil or water lines to mould or moves controls to regulate mould temperature; sets machine controls to regulate forming pressure of machine and curing time of plastic in mould; installs knock-out pins in mould, and makes other adjustments, using hand-tools; starts machine to produce sample products; examines sample for surface defects, such as bumps, bubbles, and scratches, and adjusts machine set up to eliminate defects; removes, cleans, and greases moulds and places them in storage racks. May supply plastic materials to moulding machines. May direct supplying of necessary equipment, such as jigs, containers or forms to workers engaged in tending moulding machines. May be designated according to type of machine set up, as **COMPRESSION-MOULDING MACHINE SET-UP MAN; INJECTION MOULDING MACHINE SET-UP MAN.**

**8232.70 Moulder, Hand (Plastics)** moulds plastics sheets into desired shapes in hand moulding press. Studies specifications for moulded product and assembles mould. Determines weight of charge, pressure, temperature and curing time for moulding; collects plastic sheets, cuts them to required size and heats them on electrically operated heater to soften for moulding; removes sheet when sufficiently heated and places it in female of wooden mould, fixes wooden slab of mould to keep sheet in position and inserts male block of mould; sets mould in hand press and manipulates controls to compress material and form material to shape of mould; removes moulded plastics object after specified time-interval by opening mould; examines and gauges product for conformity to plant or customer standards. May make minor adjustments in moulding procedure to eliminate defects, and remould product.

**8232.75 Cementer; Assembler (Plastics)** joins plastics sheets and moulded parts with

## NATIONAL CLASSIFICATION OF OCCUPATIONS

solvents, steel plates, screws, etc. Selects plastics sheets of specified dimensions; arranges them according to pattern to give required shape. Smoothens and cleans parts to be assembled; Brushes parts with cement or dips them into tank containing cement. Assembles parts on jig and secures them in position with clamps until cement hardens. May join by using screws and steel plates, etc.

**8232.80 Plastics Fabricator** fabricates, assembles, reworks, and repairs plastic products, applying knowledge of working characteristics of plastics and bonding techniques, using precision instruments, handtools, power tools, machines, and equipment: Reads and interprets blueprints, work orders, and related documentation to determine methods and sequence of operations and dimensional and finish specifications. Lays out cutting lines on plastic materials, such as sheet stock and fiberglass or graphite cloth, following template pattern, blueprints, sketches, or sample part, using measuring and marking instruments. Cuts material to size, using shears, knives, cutters, scissors, router, or saw. Mixes ingredients, such as resins, catalysts, fillers, accelerators, and colours, according to formulae, manually or using mixer. Sets up and operates forming machines and presses, or laminates plastic cloth and resins or preimpregnated cloth onto layup mold or bonding fixture, to shape parts. Wraps bonding fixture or mold in vacuum bagging materials, exhausts air from vacuum bag to prepare lamination for curing or bonding. Operates oven to cure parts. Trims, drills, reams, countersinks, grinds, and finishes parts to specifications, using templates, handtools, and power tools. Verifies dimensions of parts, using precision instruments, such as dial indicators, micrometers, and calipers. Fits and assembles parts and attaches hardware and fittings, such as brackets and hinges, using clamps, jigs, fixtures, power tools, and fasteners. Repairs and reworks damaged or defective parts and assemblies by lay up, foaming, cementing, molding, potting, casting, or similar methods. May heat parts or materials to facilitate shaping, using oven or heat gun. May fabricate and assemble parts from fiber reinforced plastics

(composites) and assorted materials, such as metal and honeycomb.

**8232.90 Plastics Products Making Operatives** perform number of routine and low skilled tasks in manufacturing plastics products, such as arranging and loading plastics or plastics impregnated sheets, assisting Printing Machine Operator, cleaning and finishing moulded plastics products etc. and are designated as: Laminating Press Helper (Plastics) if assists Laminating Press Operator by counting sheets of resin-impregnated wood, fabric, paper, or other materials, by wiping surface of metal plates with cloth and special solution to prevent sticking, and by stacking sheets between plain or engraved plates.

### 8238 SUPERVISORS AND FOREMEN, RUBBER AND PLASTIC PRODUCTS MACHINE OPERATORS

Supervisors and foremen, rubber and plastic products machine operators supervise manufacture of tyres, tubes and other rubber goods and plastics products.

**8238.10 Supervisor and Foreman, Rubber Goods Making** supervises manufacture of tyres, tubes and other rubber goods and ensures proper utilisation of men and materials. Arranges to draw raw materials according to specifications of articles to be made or processes involved. Guides setting of machines, tools and operations for mixing of rubber, making solution and dough, bead making, tyre and suble moulding, making foam cushions, hose pipes, etc., and runs trial piece. Checks for dimensions, shape and other specifications as prescribed and gets resettings done as necessary. Maintains prescribed records and serves as liaison between workers and management. Gets machines repaired and overhauled as necessary and ensures proper utilisation of men and material. May get trial piece checked and approved by inspection department before starting actual production. May get running repairs done under his guidance.

**8238.20 Supervisor and Foreman, Plastics Product Making** supervises various plastics product manufacturing processes and ensures proper use of men and materials. Studies

## NATIONAL CLASSIFICATION OF OCCUPATIONS

specifications, arranges for materials, tools and equipment and guides setting of machines, tools, die, moulds, etc., according to type of article to be made. Gets trial piece made, checks it for dimensions, form and composition and makes alterations if necessary to ensure conformation to prescribed specifications. Supervises machine and other manufacturing processes such as extruding, moulding, injecting of material, etc. and ensures correct production. Maintains necessary records, ensures proper use of men and material and develops methods to minimise wastage. May conduct running repairs of machines and equipment to keep them in working condition.

### 824 WOOD PRODUCT MACHINE OPERATORS

Wood product machine operators operate and monitor automatic and semiautomatic woodworking machines which perform repetitive work and are always set up by woodworking machine setters.

#### 8241 WOOD PRODUCT MACHINE OPERATORS

Wood product machine operators operate and monitor automatic and semiautomatic woodworking machines, which perform repetitive work and are always set up by woodworking machine setters.

**8241.10 Wood Carver, Machine** sets and operates automatic spindle carving machine to carve ornamental and artistic designs on wood. Studies full-size designs and specifications, determines nature of carving to be done and marks reference points on wood block, if necessary. Selects appropriate cutter and fits it to machine spindle. Fixes and adjusts wood on machine bed and starts machine. Lowers spindle, makes different cuts and manipulates wood piece against cutter to produce desired design. Changes cutter as necessary, regulates depth of cut by pedals, checks accuracy of cutting with measuring instruments, makes necessary adjustments if necessary and completes design. Ensures that work proceeds correctly and removes final product from machine. May carve design on separate piece of wood and glue or

nail it on main article. May make jigs for repetitive work. May clean and oil machine.

**8241.20 Fret Saw Machine Operator; Jig Saw Machine Operator** sets and operates fret saw machine with their reciprocating blade to cut wooden pieces, plywood etc. along marked line. Selects or receives material, determines pattern of cut and draws or traces design on it. Drills holes in material at appropriate places to pass saw blade particularly for internal cutting; fixes saw blade in machine with teeth downwards and operates foot pedal to start reciprocating movement of saw. Manipulates movement of material and cuts it along marked lines. Removes saw from machine, passes it through drilled hole, resets saw and continues operation for internal cutting. Smoothens edges after cutting with file or sand paper. May set saw number of times depending on design and cuts required.

**8241.30 Sander Operator** sets and operates sanding machine for smoothing and finishing wooden surfaces with sand paper. Selects grade of sand paper according to degree of smoothness and finish required and fits it on sanding drum. Adjusts gap between feed belt and roller by observing index needle and starts machine. Feeds ply-wood or article to be polished by feed belt against revolving sand paper to get rubbed and smoothed. Switches on exhaust fan of machine to collect dust during operation and uses goggles and rubber gloves for personal safety. Changes grade of sand paper till required smoothness is achieved. May smooth wooden articles on simpler machine by fixing them on machine platform not provided with automatic feed arrangement.

**8241.90 Wood Product Machine Operators, Other** include those who operate and monitor automatic and semiautomatic woodworking machines which perform repetitive work and are always set up by woodworking machine setters not elsewhere classified.

#### 8248 SUPERVISORS AND FOREMEN, WOOD PRODUCT MACHINE OPERATORS

Supervisors and foremen, wood product machine operators supervise and guide

## NATIONAL CLASSIFICATION OF OCCUPATIONS

workers engaged in carpentry and woodworking operations for manufacture of furniture, coaches, vehicle bodies etc.

**8248.10 Supervisor and Foreman, Woodworking Machines** supervises and guides workers engaged in operating woodworking machines for sawing, shaping, sizing and planning lumber, making joints etc., according to sample or specifications. Studies drawings or measures samples and guides workers to set machines according to required sizes. Selects lumber, runs trial piece and checks it to ensure correct setting. Gets machine reset, if necessary, and directs to saw or machine, required number of pieces. Checks machined pieces from time to time, ensures correct operations and maintains production to required schedule. Enforces safety measures, prevents wastage of material and gets tools and machines repaired or replaced as necessary to keep them in perfect working condition. Maintains prescribed records and registers and serves as liaison between workers and management. May be designated according to machine or section supervised.

**8248.20 Supervisor and Foreman, Carpentry, Cabinet Making and Related Woodworking Processes** supervises and guides carpenters and related workers engaged in making furniture, coaches, vehicle bodies, carts, etc. according to sample or prescribed specifications. Studies drawings or sample, selects right type of lumber or machined pieces and explains sizes, joints and article to be made to carpenters supervised. Checks work from time to time, ensures making of correct joints, fittings and working and guides workers as necessary. Examines assembled articles for shape, size, rigidity, finish, etc., and gets defects removed where noticed. Maintains necessary records and registers and serves as liaison between workers and management. May undertake repair work or evolve new designs. May be designated according to nature of production or section supervised.

### **825 PRINTING, BINDING AND PAPER PRODUCTS MACHINE OPERATORS**

Printing, binding and paper products machine operators operate and monitor

various types of printing and copying machines, or machines which bind and emboss books or which produce various articles from paper, paperboard and similar materials.

### **8251 PRINTING MACHINE OPERATORS**

Printing machine operators operate and monitor various types of machines which print on paper, tin plate and other materials.

**8251.10 Pressman (Flat-Bed Letter Press); Pressman; Hand Fed** sets and operates Flat-bed letter press (printing machine in which separate sheets of paper are pressed by means of cylinder or plate (platen) on inked rollers and oils machine; fills ink fountain and regulates flow of ink on inking rollers; locks type in position on bed of press by means of wedges; places wooden block over type and taps it with mallet to level printing surface; packs surface of cylinder, or platen with tissue paper; starts press and pulls proof sheets; examines proof sheets to ensure legibility and uniformity of printing, adjusts press controls, inking fountains, and automatic feeders, and repacks cylinder or plate with overlay to equalize off-level areas as required; pulls out several proof sheets and makes necessary adjustments until evenly printed proof is obtained; sets and adjusts paper guides and feeding mechanism; starts press and ensures that printing proceeds correctly; stops press when printing is completed. May mix inks to match colours, feed paper sheets into machine by hand, or direct helpers to do so, make up pages of type. May also do minor repairs. Is designated as **TREADLEMAN OR PLATEN MACHINE PRESSMAN** if works on Hand-fed or automatic platen machine, and **CYLINDER PRINTING MACHINEMAN** if works on Hand-fed or automatic cylinder printing machine.

**8251.20 Machineman, Hand Printing** operates cylinder or platen hand press for printing. Fixes imposed type on bed of printing machine and levels them. Checks up supply of ink in duct, adjusts roller parts, changes packing (paper lining) and runs machine for printing. Ensures uniformity of inking and impression.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8251.30 Machineman, Automatic Printing** operates cylinder or platen automatic printing machine. Fixes imposed type on bed of machine. Adjusts roller, flow of ink, automatic feeder and speed of machine, changes packing of platen, places paper on automatic feeding board and runs machine for printing. Ensures uniformity of inking and impression. May clean and oil machine.

**8251.40 Machineman, Rotary Printing; Machine Minder, Rotary Printing; Rotary Operator, Printing** sets and operates rotary printing machine that prints on continuous roll of paper by means of stereotype plates locked in a revolving cylinder. Cleans inking rollers and oils machine; fills ink fountains and regulates flow of ink on inking rollers; locks printing plates in position on cylinders. Supervises loading of paper rolls on machine; threads paper through machine guides and rollers; adjusts rollers and paper folding and cutting mechanism; makes trial run; checks legibility and uniformity of printing, regulates speed and makes further adjustments as necessary, restarts press and runs it to full speed; checks printed copies at regular intervals and ensures that printing, folding and cutting proceed correctly; re-threads paper if web breaks; stops press when required number of copies have been printed, and removes plates. Keeps record of production. May file and grind cutting blades. May load supply rolls of paper in press at beginning and during run. May do minor repairs.

**8251.45 Machineman, Offset Printing; Offset Printer** operates offset printing press in which impression from plate is first received on rubber blanket and then transferred to paper. Washes plate with chemical solutions to render non-image portions ink-repellant and to ensure clear impression. Clamps plates firmly on cylinder, places paper roll on automatic feeding stand and fills ink in fountain in machine. Runs machine for printing. Regulates speed of machine and ensures uniformity of inking and impression. Supervises work of Inkers. Cleans and oils machine.

**8251.50 Machineman, Direct Lithographic Printing; Litho Printer** operates direct litho press in which impression is transferred

directly from plate or stone to paper. Washes plate with water and positions it on bed of machine. Places paper for printing on feeding board. Adjusts rollers and dampers. Runs machine for printing. Ensures uniformity of inking and impression.

**8251.60 Pressman, Roto Gravure** sets and operates rotary-type press to print illustrative and other subject matter on continuous roll of paper from photo-engraved plates or cylinders upon which printing matter is etched below surface. Cleans inking rollers and oils machine. Installs engraved copper printing cylinder in press, using hand tools. Fills ink fountains and regulates flow of ink. Threads paper through machine guides and rollers and adjusts rollers and paper folding and cutting mechanism. Sets focus of electronic scanners on guide line of paper (for multi-colour printing) to automatically control colour registration. Sets and adjusts scraper blade to remove excess of ink from surface of plate or cylinder. Makes trial run, checks legibility and uniformity of printing on paper and further adjustments, if necessary. Restarts machine, raises it to full speed. Inspects printed copies at regular intervals and adjusts press as required to produce printed matter to specifications. Directs workers in feeding and unloading press, replenishing ink supply in fountains, cleaning equipment and other press operations. Stops press when required number of copies have been printed and removes plates or cylinders from machine. Maintains prescribed records of production. May file and grind scraping and cutting blades.

**8251.90 Printing Press Operatives** perform variety of routine and low skilled tasks such as applying ink on type set in hand press, cleaning and oiling printing machines, feeding paper, mounting paper reels and clamping printing plates on rotary machines etc., and be known as:

**Inkman** If fills ink trough on printing machine with liquid ink and applies ink manually with roller on type set in hand press.

**Machine Attendant** If mounts paper reels in position and passes paper through rollers to

## NATIONAL CLASSIFICATION OF OCCUPATIONS

proper position for printing, clamps printing plates on rotary machines.

**Feeder** If feeds paper, piled up on feeding platform, into machine for printing and checks flow of paper sheets into machine and regulates speed of feeding.

**Deliveryman** If takes delivery of printed sheets of paper on printing machine; checks quality of printing and shows periodically samples of printing to Machineman for necessary adjustment of machine to ensure quality of impression.

### 8252 BOOKBINDING MACHINE OPERATORS

Bookbinding machine operators operate and monitor machines which bind and emboss books.

### 8253 PAPER PRODUCTS MACHINE OPERATORS

Paper products machine operators operate and monitor machines which produce boxes, envelopes, bags and other goods from paper, paperboard, cardboard, cellophane and similar materials.

**8253.10 Cardboard Box Maker** cuts cardboard pieces to required size and shape, folds, ends and joints to make cardboard boxes. Collects required quantity of cardboard or paper-board blanks. Cuts blanks to required size according to design or specification, by hand or machine; folds sheets along cut or grooved edges to make flaps for sides, top and bottom; glues ends or edges to make cartons or boxes, or fastens parts together with pins using stapling machine. Covers boxes by gluing protective or decorative paper. May operate gluing, bending, cutting, creasing and pinning machines to glue. Fold or cut cardboards and staple them. May impregnate box by dipping it in melted wax. May be designated as Paperboard Box Maker, if using paperboard for making boxes, containers, etc. May be designated as Cardboard/Paperboard Box Maker, Machine if producing cardboard or paperboard boxes on machine.

**8253.20 Envelope Maker, Machine; Envelope Folder; Paper Bag Maker, Machine** cuts, folds and glues edges of paper to make envelopes and paper bags of required sizes. Collects required quality and quantity of paper; studies specifications. Sets and adjusts machine to cut and fold paper to size of envelope or paper bag to be made. Feeds blank sheets or roll of paper into machine; pours into hopper of machine and regulates its flow; sets cutting, gluing and folding devices. Presses button to start machine; observes progress, stops machine to correct faulty operation; and discharges completed envelopes, bags in containers. Examines finished products for quality and makes necessary adjustments to machine to obtain products of correct specifications. May mix glue solution. May also set and operate a semi-automatic or automatic machine equipped for printing on products made. May be designated as **ENVELOPE MAKER OR PAPER BAG MAKER, HAND**, if produces envelopes or paper bags by hand, cutting paper to required size, folding and joining ends together.

**8253.30 Cellophane Bag Maker, Machine** Sets and operates machine that forms cellophane into bags. Sets into machine metal form on which to shape bag; loads roll of cellophane on spindle of machine; threads cellophane through folding, cutting and glueing devices; adjusts machine to produce bags of specified size. Starts machine by switching on power; observes operation by adjusting tension of parts and material, examines finished products for quality and specification. May set and operate machine also equipped for printing information and decoration on bags. May make bags from other materials such as paper etc.

**8253.40 Flower Maker, Paper** makes leaves and flower petals of paper of different shades and colours sets them on wire or bamboo wickers. Collects paper sheets of required quantity, colours and shades for making flowers of desired type; folds and cuts paper by hand, using pair of scissors or cutting die for mass production, for preparing flower petals, leaves, etc., shapes, twists and trims, cut bits to form into petals and leaves of desired pattern; assembles petals and leaves together by gluing around wire stem to make into buds; gives finishing

## NATIONAL CLASSIFICATION OF OCCUPATIONS

touches by trimming and clipping edges and arranging them to form bunches or bouquet. May make flowers from cloth or other material. May prepare novelties, such as chinese lanterns, flower festoons and paper hand-fans.

**8253.50 Papier Mache Moulder** prepares 'papier mache' by mixing glue or roain with paper pulp and makes statues, toys and other novelties by moulding 'papier mache' to shape using patterns. Mixes paper pulp, glue and limestone powder in water to make into paste; prepares papier sheets out of paste by using hand roller; takes two halves' of appropriate mould or die figure or toy, and greases inside of form-mould 'halves' with brush; places wet 'papier mache' sheets over mould and presses it hard with hand to form impression on 'papier mache', builds up form to desired thickness, fitting and smoothing each sheet to mould; places two halves of mould together, pastes and presses lap projections of each half of form together, and leaves mould and cast for drying. Removes completed form from moulds after specified period; trims and smoothens edges, using sand paper, and fixes attachments as required. Places finished products for drying and paints giving finishing touches with ornamental decoration. May prepare own colour schemes for painting forms. May design own patterns.

**8253.90 Paper Product Maker, Other** Makes other paper products not elsewhere classified such as Tube Maker, Paper, if operates power-operated machine which rolls paper and makes finished paper tubes of required size for use as cover or tubes for dry battery cells.

**Paper Coater**, if tends and adjusts machine which coats paper or board with binding medium and mineral matter or with tinfoil paste.

**Colourman**, if mixes material and colours used for coating paper on board.

**Paper-Novelty Maker** if makes paper candy and nut cups and miscellaneous paper novelties such as hats, party favours, etc.

### **8258 SUPERVISORS AND FOREMEN PRINTING, BINDING AND PAPER PRODUCT MACHINE OPERATORS**

Supervisors and Foremen printing, binding and paper product machine operators supervise manufacture of paper and paper board products by various manual and mechanical processes.

#### **8258.10 Supervisor and Foreman, Paper and Paper Board Product Making**

supervises manufacture of paper and paper board products by various manual and mechanical processes and ensures correct production. Studies details of articles to be made and arrange, for necessary metal, wooden or cardboard patterns or gets machines set accordingly. Guides workers in cutting, folding, trimming, moulding paper mache to required shape, stretching cardboard parchment or other paper over lamp shade fra me, etc., depending on type of article to be made and ensures correct production. Keeps production and other prescribed records, ensures proper utilisation of men and material and develops methods to minimise wastage. Maintains discipline in section supervised and trains new workers. May design paper flowers, toys and novelties.

#### **8258.90 Supervisors and Foremen, Printing, Binding and Paper Products Machine Operators, Other**

include those who supervise manufacture of paper and paper board products by various manual and mechanical processes not elsewhere classified.

### **826 TEXTILES, FUR AND LEATHER PRODUCTS MACHINE OPERATORS**

Textiles, fur and leather products machine operators operate and monitor machines which prepare fibres and yarns, or hides and pelts, and manufacture or dry- clean textiles, or fur and leather articles.

#### **8261 FIBRE PREPARING, SPINNING AND WINDING MACHINE OPERATORS**

Fibre preparing, spinning and winding machine operators operate and monitor machines which prepare fibres, and spin, double, twist and wind yarn and thread.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8261.10 Garnette Machineman, Wool** tends garnette machine for cleaning and turning woollen yarn waste into fluffed wool. Collects woollen thread waste near feed end of garnette machine. Starts machine, picks up woollen waste yarn by hand and spreads it evenly on lattice of machine for cleaning and turning it into fluffed wool. Removes waste wool from doffer drum of machine using hand brush and iron nail and ensures running of machine. Cleans and oils machine. May cut hard knots if detected in woollen waste yarn with knife.

**8261.15 Bending Machine Operator** sets up and operates machine to bend metal structural shapes, such as bars, rods, angles, pipes, and tubes, to angle or contour specified by work order, drawings, templates, or layout: Selects and bolts holding clamp, die block, and guide clamp to machine. Positions and clamps end stops on machine to set specified location of bend. Inserts or screws plug stops into guide wheel to set specified degree of bend. Positions workpiece against end stop. Locks holding clamp and guide clamp onto workpiece. Lubricates workpiece with oil. Starts turntable that draws workpiece through guide clamp around die block until stopped by plug stops or until dial indicator points to specified degree of bend. May slide mandrel into tubing instead of using guide clamp. May preheat workpiece, using hand torch or heating furnace. May use hand-powered bending machine for short runs. May fill tubes or pipe with sand, resin, or lead to prevent wrinkling or collapsing during bending operation. May heat tube, using torch, and manually bend tube or pipe around forming blocks. May flare tube ends, using tube flarer and cut or trim metal stock to length, using power shears or saws.

**8261.20 Rag Machineman (Woollen Textile)** tends and feeds rag machine for tearing woollen rags into fibre. Collects cuttings, rags and woollen cloth near feed end of machine. Sprinkles prescribed quantity of oil on rags using sprinkler to soften it. Starts machine, picks up handful of oiled rags and feeds them on lattice of machine. Spreads rags with hand on lattice evenly. Maintains regular feed of rags and their flow. Avoids choking of rage machine.

Processes rags and turns it into fibrous condition. Removes waste from machine parts and cleans machine. May oil and clean machine.

**8261.25 Doubling Machine Operator (Textile)** tends machine that winds two or more strands of yarn parallel onto bobbin or tube preparatory to twisting: Places supply packages in creel and draws yarn ends through machine guides and tensions onto takeup tube. Starts machine and observes operation to detect yarn breaks, exhausting yarn supply and full packages on takeup tubes. Pieces up yarn breaks, using knotter. Replaces supply packages in creel. Doffs full packages.

**8261.30 Combing Tenter; Comberman (Cotton Textile)** tends combing machine for combing or separating short fibres from long ones and converting lap into sliver preparatory to drawing. Places lap rolls or spools in proper position on creel of combing machine. Pulls out and leads ends of lap through assembly on to feed-rolls. Sets calender rollers to position and starts machine. Watches running of sliver through machine. Detects and joins broken ends of sliver. Removes surplus sliver after stopping machine to avoid jamming and when necessary. Leads web coming through funnel like guide into can at delivery end and replaces filled can with empties. Removes waste sliver rolls from back of machine to specified place or to waste bag. Cleans and oils machine.

**8261.35 Spinner, Frame (Textile)** tends spinning frame that draws out and twists roving or sliver into yarn: Patrols work area and observes spinning to detect nearly exhausted supply packages and breaks in yarn, roving, and sliver. Pieces up breaks in yarn, roving, and sliver and replaces nearly exhausted supply packages with full packages. Twists end of material from supply package to material in machine or threads material from supply package through machine guides and drawing rollers. Brushes yarn or lint from drawing rollers, guides, and rails. Notifies designated personnel of machine malfunction. May doff machine.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8261.40 Drawing Tenter; Draw Frame Tenter; Drawing Feeder; Drawing Receivers(Textile)** tends draw frame (machine) having number of drawing sets, each set combining several slivers into one of nearly same weight and thickness as any of original sliver. Arranges number of cans full of card or comber sliver at rear of drawing machine. Threads ends of sliver from cans through machine. Replaces empty cans with filled cans, joining ends of slivers by matting and rolling them together with fingers. Watches slivers running into machine and joins broken ends. Replaces cans when filled at delivery end with empty ones. Cleans machine and may oil and varnish top rollers.

**8261.50 Slubbing Tenter; Slubber (Cotton Textile)** tends slubber or slubbing machine for drawing slivers received from drawing machine into loosely twisted strands called rovings. Arranges sliver cans behind machine. Draws sliver ends and feeds them through guide and rollers around bobbins or tubes at finish end. Starts machine and watches running of slivers through guides and rollers and also their winding on bobbins. Ensures regular feed of sliver into machine. Stops machine when ends of sliver and rovings break and pieces (joins) them by hand. Removes surplus sliver. Ensures removal of filled bobbins and supply of empty ones. Wipes out short fibres and lint from top and bottom rollers, and clears them. Oils and cleans machine. May put identification marks and help Doffers, Fly frame.

**8261.60 Inter Tenter; Roving Tenter (Textile)** tends inter or roving machine for drawing and twisting two slubbing rovings into one strand. Brings filled bobbins from slubbing machine, puts them on spindles (skewers) at rear of machine, feeds two ends into each set of rollers, threads end through guide and flyer to bobbins and starts machine. Replaces empty slubbing bobbins with filled ones and joins ends of rovings. Stops machine when roving breaks, pieces broken ends and restarts machine. Stops machine when prescribed length has been wound on bobbins. Cleans top and under clearers and oils machine.

**8261.70 Reeler, Textile** operates reeling machine for winding yarn from bobbins or cops into coils (skeins or hanks) places yarn bobbins or cops on spindles of machine, pulls ends of yarn from each bobbin or cop through guide hook and traverse rail and loops it to pin on reel. Sets dial that measures yardage of yarn wound. Turns reel by operating lever or by hand so that yarn is pulled from bobbins or cops and wound into coils. Replaces cops or bobbins when empty with filled ones and knots loose ends from new cops or bobbins to tail ends of coils. Stops machine when coils of prescribed yardage are made and removes coils from reel. May collect together required number of coil or hanks and make them in knots by hand. Is designated as **RE-REELER** or **HAND MAKER** when reeling silk yarn.

**8261.77 Reed Man; Reed Repairer(Textile)** repairs and replaces broken or defective reeds to be used in weaving. Locates defective or broken dents(wires) in reed frame, cuts out defective portions and nails new piece in place and repairs damaged frames.

**8261.79 Healdman; Heald Repairer(Textile)** repairs and replaces broken or defective healds, pulls out or cuts them with scissors or pliers and fastens new ones in their place by hand or by twisting them into position with pliers.

**8261.80 Reeler, Silk** places cooked cocoons in basins of reeling machine, containing taped water. Stirs cocoons in water with fingers and draws loose ends of silk filament from each cocoon. Collects four or five loose ends together to form one yarn or composite filament depending on type of thickness of yarn required. Draws ends of silk yarn through hole of button of reeling machine and over pulleys. Fastens or ties ends to reel fitted to machine. Starts machine and tends reeling basis to draw out silk filament from cooked cocoons. Ensures that silk yarn or filament is drawn from each cocoon and twisted and reeled in reeling frame. Feeds fresh ends of silk filament from fresh cocoons by throwing ends of filament by hand to one already being reeled and ensures that continuity of reeling and thickness of filament is maintained. Stops machine when silk filament gets broken.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Traces ends from reel and restores continuity by knotting ends together by hand. Restarts machine and continues reeling. Replaces empty spool or reel over machine when existing reel is fully wound. Collects waste filament from basin and dries it in sun for use as waste silk after teasing and cleaning. May oil and clean machine. May re-reel silk thread from small to standard reels to form hanks.

**8261.81 Yarn Tester** tests yarn by using various instruments for ascertaining its strength, elasticity, thickness, neatness, etc. conducts various tests such as 'winding-breaks, test' to ascertain continuity of hank, 'size test' by using sizing-skein-winder to find out thickness of yarn 'seriplane test' to find out uniformity and neatness of yarns 'serigraph test' to check strength and elasticity, cohesion test' to find out extent of wear and tear yarn will stand, 'conditioning oven test' to fix standard weight.

**8261.82 Wrapping Boy; Wrapper(Textile)** aids in testing wrappings (samples) of sliver, roving and yarn for count and strength. Collects samples of, in specified length, roving and yarn from drawing and spinning departments. Weighs each length on scale. Fixes each sample of yarn on testing machine and assists Yarn Tester in ascertaining strength, elasticity, twist per inch, thickness and uniformity. Cleans and oils the machine. May operate Yarn Examining Board to test evenness of the yarn. May check weight of yarn against count. May record temperature and humidity readings.

**8261.83 Pin Setter; Needler(Textile)** replaces pins or needles in comb circle and gill box collar of combing and gill box machines. Examines pins and pulls out defective ones with pliers. Cleans pin slots, hammers in new pins taking care that they are set straight and firmly. Cleans trash from pins.

**8261.84 Roller Coverer; Roll Covering Man** operates and resurfaces metal drawing rolls of various spinning, combing and lapping machines with new rubber or leather covers. Cuts defective cover from drawing roll and uses it as pattern for cutting new one from rubber or leather. washes roller with

steam or caustic soda solution. Inserts cover and metal roller into roller cover machine which automatically mounts cover on roller. Transfers roller to buffing machine and buffs cover to smooth surface and uniform thickness. Varnishes cleaned roller and wraps with flannel replacing leather cover. Forms leather sleeve by glueing together sides of previously cut leather cover; pulls sleeve by glueing together sides of previously cut leather cover; pulls sleeve over roller with aid of hand operated device and seals ends of leather cover by painting with chemical solution. May substitute cork or other synthetic covering for rubber or leather.

**8261.85 Winder (Textile)** tends winding machine for winding yarn from hanks to bobbins or from spinning bobbins to other bobbins, spools, cones, cheeses, etc. Mounts, by hand, hanks on swift (reel) or mounts full bobbins, cones, etc., on stands of machine.. Draws end of yarn from each hank or full bobbin, through guide and tension arm and loops it round rotating empty bobbin, cone, cheese or spool, for winding. Pieces broken ends. Removes wound cones, cheeses, spools, etc., from spindles and replaces them with empties. Is designated as **GREY WINDER, PIRN WINDER, CHEESE WINDER, CONE WINDER, SPOOLWINDER, COP WINDER, UNIVERSAL WINDER, COLOUR WINDER, TAILING MAN**, etc., according to type of machine operated and bobbin or spool used.

**8261.86 Size Mixer; Starch Mixer(Textile)** prepares sizing for use in stiffening and finishing cloth and yarn. Measures or weighs ingredients such as starch, tallow, resins, soaps and water according to instructions, mixes them in tank of mixer, opens steam valve and allows mixture to mix and boil for specified time. Opens outlet valve to discharge contents to sizing department. Cleans mixer and measuring pots.

**8261.87 Waterproofer, Textile** treats textiles with chemicals (other than rubber) to make them water resistant. Fills container with chemical solution (other than rubber) and controls its temperature. Feeds lengths of material into rollers and joins ends together. Passes material through rollers into

## NATIONAL CLASSIFICATION OF OCCUPATIONS

solution until it is impregnated and removes folds and creases, if any. Cleans equipment and maintains them in working order. May combine dyeing process with waterproofing; chemicals used and experience of controlling solution temperature; knowledge of combining dyeing process with waterproofing and if also able to treat textiles with rubber.

**8261.88 Weighter, Silk** treats silk with solutions of tin and phosphates(chemicals) to give it weight or body. Wraps silk in blanket or coarse canvas and places it in container of centrifugal machine. Pumps solution of tin from mixing vat into machine and runs it for set period, keeping material immersed in solution. Draws off solution and transfers material to spray-washing machine. Returns material to centrifugal machine containing phosphates and runs it to fix tin to silk. Repeats process, as necessary to obtain desired weight.

**8261.89 Fetler ( Woollen Textile)** cleans rollers and cylinders of carding machines to remove wool waste. Removes, slides off, or otherwise disconnects belts and chains that drive machine. Climbs on machine, slowly rotates rollers and cylinders by hand picks out accumulated dirt, fibers and foreign matter and assures that moving parts operate freely. Reconnects drive mechanism. Attends to cards until cards get filled with material. Assists Condenser Minder in taking out ends and putting them on proper position on condenser bobbins. May attend to card mounting and assist in repair work of cards.

**8261.90 Fibre Preparing, Spinning and Winding Machine Operators, Other** include workers who operate and monitor machines which prepare fibres, and spin, double, twist and wind yarn and thread not elsewhere classified.

### 8262 WEAVING AND KNITTING MACHINE OPERATORS

Weaving and knitting machine operators operate and monitor weaving and knitting machines and related equipment used to produce materials and fabrics.

**8262.10 Knitting Jobber; Knitting Mistry; Knitting Machine Fixer; Fixer, Knitting Machine** sets and adjusts knitting machines according to design , shape and size of product desired. Inspects product of machines for defects in knitting and makes necessary adjustments. Replaces broken or worn out parts. Repairs and overhauls machines. Supervises work of knitters and ensures quality and production.

**8262.20 Card Cutter; Punch Operator(Textile)** operates card cutting machine for punching holes in card used for controlling pattern of cloth woven on jacquard or dobby looms. Studies designs. Spreads graph paper on table and prepares draft and plan for design, indicating places where warp is to be raised over weft. Fixes graph paper containing design on machine board. Inserts plan card into cutting machine equipped with key-board. Depresses key with fingers to punch holes into card as per diagram for controlling pattern on cloth woven. Presses lever by leg to push punched card into inner portion of machine making room for punching unpunched portion. Numbers punched cards serially and inserts them in pegs in stand for subsequent lacing. Fixes and adjusts heald and card chain on jacquard machine. May prepare design for lattice pegging. May do lacing of cards by hand or machine to make complete design. May do lattice pegging. May fix up heald and lattice on dobby loom.

**8262.25 Mat Shearing; Mat Trimmer (Coir)** operates shearing and trimming machine to make surface and edges of mats even. Sets machine depth of shearing by adjusting gap between roller and blades. Feeds mat into machine which clips off high fibers. Trims sheared mat on all sides by holding aides between blades and roller. Removes loose fibres from surface. May repeat process if additional shearing is required.

**8262.30 Flatknitter, Machine; :Flat Knitting Machine Operator; Flat Knitting Machineman** operates knitting machine for producing flat fabric (as distinct from tubular or circular fabric). Places cones of yarn on stand of machine and threads ends of yarn through guides and feeders. Starts machine. Replaces empty cones with filled ones and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

joins broken ends. Cleans machine.  
:Replaces defective or broken needles. May  
oil and clean machine.

**8262.35 Sock Knitter; Sock Knitting Machineman; Sock Knitting Machine Operator** operates machine for knitting heel and toes of socks into ribs or tops cut from circular fabric. Places cones of yarn on stand of machine. Threads yarn through guides and feeders. Sets loops of one end of top on pins of transfer dial or ring, sets transfer ring by hand over needles of knitting machine and turns handle that transfers loops from pins of ring to needles of machine. Starts machine that knits rest of sock into top. Removes knitted material from machine. Replaces empty cones with full ones and joins ends. Replaces defective or broken needles. Cleans and oils machine.

**8262.40 Sock Knitter, Automatic Machine; Automatic Sock Knitting Machine Operator** operates knitting machine for knitting all parts of sock such as rib top or elastic top, leg, heel, foot and toe in continuous tube. Adjusts machine according to size of sock to be knitted. Places filled cones of yarn on stand of machine. Threads ends of yarn through guides and feeders. Turns cylinder by handle so that all ends are caught by latches of needles set in cylinder. Starts machine. Replaces empty cones with full ones and joins ends. Replaces defective or broken needles and sinkers(mechanism that pushes thread over needles to form new loops). Oils and cleans machine.

**8262.45 Knitter, Machine; Circular Knitting Machine Tenter; Circular Knitter, Tube Knitter** operates one or more machines that knit seamless circular or tubular fabric from yarn. Places filled cones of yarn on stand of machine. Threads ends of yarn from cones through guides, tension springs and feeders and turns cylinder by handle so that yarn is caught by latches of all needles in cylinder. Starts machine which automatically knits fabric. Watches for defects in knitting. Replaces empty cones with full ones and joins ends. Removes knitted fabric by cutting it with scissors. Cleans and oils machine. Replaces broken or defective needles and sinkers(mechanism

that pushes thread over needles to form new loops).

**8262.50 Looperman, Hosiery; Linking Machine Operator, Hosiery; Linking Machineman Hosiery** operates machine which seams openings in toes of socks. Places cones of yarn on stand of machine, and threads yarn through guide, tension disc and eye of needle. Sets loops of socks on looper pins or points of a circular dial. Starts machine. Replaces empty cone with filled one; cleans and oils machine and replaces defective pins.

**8262.55 Warp Knitter** tends machine for knitting fabric used for mosquito nets, curtains etc. Mounts yarn beam on frame of machine. Draws ends of yarn from beam through guides and feeders. Operates machine by hand till knitted fabric reaches roller. Ties end of fabric to roller. Starts machine and joins broken ends as necessary. Cuts and removes knitted fabric from machine. Cleans and oils machine.

**8262.60 Weaver, Lace (Machine)** operates lace-making machines to weave lace according to set pattern. Starts machine and ensures that weaving is proceeding correctly. Mends broken threads by hand and removes faulty pieces. Keeps machine supplied with yarn. Reports mechanical faults to Jobber to get defects removed. May pass threads through machine guides in preparation for weaving and make minor adjustments.

**8262.65 Braid Maker, Machine** operates one or more machines to interweave threads into tabular cord or narrow band. Passes thread through machine guides. Starts machine and ensures that braiding is proceeding correctly. Maintains supply of thread and mends breakages.

**8262.70 Lace Maker, Machine; Crocheter, Machine** operates crocheter machine to knit lace, trimming etc. of desired pattern or design. Selects pattern of lace or trimming and places bobbins of selected threads on machine. Passes ends of thread from each bobbin through machine guides and eye of machine needle. Knots ends together and passes it over reel on machine. Adjusts machine for thread tension and clockwise or anti-clockwise movement of spindles

## NATIONAL CLASSIFICATION OF OCCUPATIONS

according to pattern of lace, knit required, etc. Starts machine. Arranges material in position for crocheting and guides it under needle. Detects and joins broken ends of thread by hand as necessary. Checks running of yarn through each spindle. Stops machine and replaces empty bobbins and broken needles during operation. Collects knitted lace, trimmings, etc.

**8262.75 Drawer; Drawer-in; Healdier(Textile)** draws each of several hundred ends of yarn from beam through openings in healds and reeds for weaving required pattern of cloth on loom. Pulls ends of yarn from beam so that all ends hang on drawing frame and combs ends to make them straight and uniform. Sets healds and reeds in drawing frame according to specifications. Draws each end of yarn through opening in healds and reeds using a drawing hook. Gathers all ends, when drawn, in bunches and ties them in loose knots.

**8262.80 Warp-Tying Machineman** operates warp-tying machine which knots warp ends from filled loom beam to ends from exhausted beam. Checks if both beams have been properly set on warp-tying frame and ties lease string to separate layers of yarn on beams. Sets machine in frame, turns hand crank to see if machine gathers ends correctly and adjusts machine if necessary. Switches on machine for automatic knotting of ends. Knots, by hand ends not tied by machine. Cleans and oils machine.

**8262.81 Warper; Beamer** tends warping machine for drawing and winding on a large spool(beam) many strands of yarn from several cones, cheeses or bobbins arranged on a creel. Fixes empty beam or drum in brackets of machine. Adjusts length gauge. Draws each thread through appropriate guide, dent and drop pin. Fastens all ends to beam or loops them on hook of drum. Starts machine and observes winding of yarn on beam whenever machine stops automatically, gets end of yarn brought from creel by Endman and pieces ends. Stops machine when required length has been wound, cuts yarn strands between comb and beam, knots all ends together into two or three bunches and removes beam from machine with help of Endman. Is designated

as **BEAMER** when warping yarn from section drums to weaver's beam.

**8262.82 Creeler; Creel Boy; Connectionman** arranges cones or spools on creels for warping. Brings filled spools or cones from winding machine. Ascertains number of yarn ends to be wound on warp beam, places required number of spools or cones on pegs of creel(rack equipped with several hundred pegs or spindles) and ties tail end of yarn of one cone to lead end of another for continuous winding. Replaces exhausted cones with full ones and joins ends. Cleans creel and warping machine. May also work as Endman.

**8262.83 Endman, Sideman; Creel Boy; Warper Boy** traces ends of broken yarns and assists Warper in creeling of cones and gaiting, and doffing beams. Locates and carries ends of yarn which break between creel and warping machine to Warper for piecing (joining). Assists him in changing cones in creel for setting up new patterns, and in removing filled beams of warp from machine and setting empty beams in their respective places. Replaces empty cones by filled once as and when necessary and cleans machine .May piece yarn.

**8262.85 Front Sizer(Cotton Textile)** tends sizing machine for drawing warp yarn through sizing solution and drawing devices to condition and strengthen it and to wind it on weavers beam. Lifts warp beams assisted by Back Sizer and puts them on back creel or machine by hand or by chain pulley. Gathers ends into bunches and ties them to corresponding bunches of ends left threaded through machine from previous run. Pulls ends from warp beam, when machine is empty, through sow box , around drying cylinders and on to weavers beam set in brackets in front of machine. Counts and distributes ends in wraith(zigzag comb) according to specified pattern. Starts machine. Detects broken ends during run of machine, slows down machine, twists together broken ends of corresponding ends and returns machine to normal speed. Ensures that yarn receives proper amount and consistency of size and is being dried sufficiently. Stops machine when required amount of warp has been wound on weaver's beam. Cuts warp yarn, ties ends into 2 to 3

## NATIONAL CLASSIFICATION OF OCCUPATIONS

bunches or ties a gum tape and removes weaver's beam with overhead hoist or by hand. Supervises work of Back Sizer. Cleans and oils machine.

**8262.86 Back Sizer(Cotton Textile)** assists Front Sizer in setting and operating sizing machine. Helps in loading warp beams on back creel of machine by hand or by chain-pulley and in drawing ends through machine. Places lease strings across warp ends coming from warp beams to divide them into different layers. Detects broken ends at rear of machine and joins them together. Maintains required quantity and temperature of sizing solution in sow-box or sizing-back. Takes off flannel from sizing roller and washes it when necessary. Removes empty beams and assists Front Sizer in cleaning and oiling machine.

**8262.90 Weaving and Knitting Machine Setters and Pattern Card Prepares, Other** include all other workers engaged in setting weaving and knitting machines and in preparing pattern cards for weaving designs, not elsewhere classified.

**8263 SEWING MACHINE OPERATORS**

Sewing machine operators operate and monitor sewing machines to make textile, fur or leather garments or embroider ornamental designs on garments or other materials.

**8263.10 Sewing Machine Operator, General; Stitcher Machine (Textile and Fur products)** operates sewing machine to join pieces of cloth, hosiery fabric, canvas, fur and leather for making garments, bags, upholstery and other textile and fur products. Places spools of required type and colour of thread and winds bobbins on machine. Draws thread under tension spring and through guides into eye of needle. Adjusts tension on thread and sets number of stitches per inch if necessary. Raises pressure foot of machine to admit material to be sewed and lowers pressure foot on material. Starts machine and guides material to be sewed under needle of machine. Observes stitches while sewing. Stops machine, breaks and cuts threads and removes sewed material. Replaces empty spool and bobbin with full ones as and when necessary. Cleans and oils machine. May remove minor faults and

assist in repairs and overhauling of sewing machine. May set and attach special gadgets to machine for having special type of stitches. May be designated according to type of machine operated such as **BLIND STITCH MACHINE OPERATOR; ZIG-ZAG MACHINE OPERATOR; BAR TACKING MACHINE OPERATOR; TURNING AND PRESSING MACHINE OPERATOR; SOULDER STRAP TURNING MACHINE OPERATOR; POSTBED MACHINE OPERATOR; DOUBLE NEEDLE SEWING MACHINE OPERATOR; etc.**

**8263.20 Button-Hole Maker, Machine; Button-Hole Machine Operator** operates button-hole making machine which cuts holes and stitches around holes automatically. Mounts spool of thread and wound bobbin on machine. Draws thread through guides and eye of needle. Adjusts gauge according to size of hole required. Presses pedal to raise pressure-foot, inserts part of garment where button-holes are to be made and adjusts it. Releases pedal to lower pressure foot. Presses another pedal to start machine which cuts hole and stitches around hole. May clean and oil machine.

**8263.30 Eyelet Holing Machine Operator** operates eyelet machine to punch and stitch holes for fixing eyelets in garments. Selects thread of required colour and shade matching cloth and puts thread reel on machine or creel. Sets wound bobbin into shuttle of machine. Pulls thread through guide into eye of needle and sets thread tension by screwing regulator. Fixes punch of required size in machine and adjusts it. Operates foot pedal to raise pressure foot of machine and admits marked portion of garment where eyelet hole is to be made below it. Positions marked portion to garment below pressure foot and releases pressure foot to hold it. Starts machine which automatically drops punch to cut hole and stitches it on both sides of material. Replaces broken needle and empty shuttle as and when necessary. May operate different types of machine according to fabric and regulate super-tension of thread movement. May adjust number of stitches per inch.

**8263.40 Button Stitching Machine Operator; Button Stitcher, Machine**

## NATIONAL CLASSIFICATION OF OCCUPATIONS

operates button stitching machine which stitches buttons to garments. Mounts spool of required type of thread and wound bobbin on machine and draws thread through guides and eye of needle. Presses pedal to raise pressured foot of machine and inserts part of garment where buttons are to be stitched under it. Places button in clamp over pressure-foot and releases pedal to lower pressure foot. Starts machine which automatically stitches button. May clean and oil machine and attend to minor repairs.

**8263.45 Embroider, Machine** embroiders various designs on fabric or garments by machines. Selects size and colour of thread and amounts bobbins of thread or machine. Threads needle and passes yarn through carrier of machine. Adjusts machine for thread tension and type of stitch. Presses lever to raise needle and inserts material under it. Guides material or sewing arm of machine in accordance with drawing or outline or guide points of pantograph on enlarged design. Changes thread as required and replaces empty bobbins and broken needles. Removes article when embroidering is complete. Cleans and oils machine. May mark outlines of design on material before embroidery is started. May operate machine which embroiders several articles or designs at one time. May be designated as **CROCHETING MACHINE OPERATOR** if embroiders designs using crocheting machine.

**8263.50 Embroidery Machine Operator (Semi Automatic)** tends semiautomatic sewing machine with multiple-sewing heads controlled by pattern chain that embroiders designs on garments or garment parts: Positions garment or part over embroidery hoops arranged in hoop frame, following edges or markings on fabric. Places hoop frame on machine bed and turns thumbscrews to secure frame to machine. Presses button to start machine that sews design onto garment or part and stops, or sews one colour of multiple-colour design and stops. When sewing multiple-colour designs, rethreads machine with subsequent colours of thread and starts machine to complete design. Removes hoop frame from machine on completion of design and removes garment or part from hoops.

**8263.90 Sewers and Embroiders, Other** include all other sewers and embroiders engaged in hand and machine sewing and embroidering textile and kindered materials such as those sewing and embroidering household linen, hats, caps, upholstery, mattresses, etc., not elsewhere classified.

### **8264 BLEACHING, DYING AND CLEANING MACHINE OPERATORS**

Bleaching, dying and cleaning machine operators operate and monitor machines which bleach, dye, wash and otherwise treat fibres, yarn, or cloth or dryclean textile, fur and leather articles.

**8264.10 Washing Machine Operator** washes and cleans garments in power driven washing machines. Places soiled articles in container of machine. Operates valve to fill machine with water to prescribed level and adds soap and other cleaning agents to water. Opens valves to admit steam into machine to raise temperature of water to and maintain it at desired temperature. Operates controls to start rotation of container. Drains water from machine and refills it as required to rinse articles. Stops machine when articles are washed, cleaned and rinsed and then removes them to drying machine for drying. May operate hydro-extracted machine to extract water out of wet articles.

**8264.20 Drying Machine Operator; Drying Tumbler Operator** dries washed or dyed garments by operating hand or electrically driven drying-machine tumbler. Loads cleaned or dyed articles into drum of drying machine. Determines period of time for article to remain in drum according to its nature and texture. Manipulates hand levers or electric switches to start drum and electric fan, and turns hand valves in steam pipes that supply hot air to drum. Stops or switches off machine and ensures that articles are thoroughly dried and odour of cleaning fluid is removed. May operate extractor or washing machine.

**8264.30 Dry-Cleaner, Machine; Dry Cleaning Machine Operator** cleans and disinfects woolen and silken garments, textile furnishings and other similar articles with chemical solution or petroleum product by operating power-driven cleaning



## NATIONAL CLASSIFICATION OF OCCUPATIONS

machine. Places articles in drum of machine and fastens cover. Operates valves to feed chemical solution into machine and operates controls to start rotation of drum allowing drum to rotate until articles are cleaned. Stops rotation of drum and drains off solution. Opens machine, removes articles from it for pressing by machine or ironing by Presser. May periodically, filter dirty cleaning fluid. May sort articles according to colour and condition and type of material. May remove spots or stains by rubbing them with solvent. May examine dry-cleaned articles for any defect or damage.

**8264.40 Presser, Machine** operates pressing machine to smoothen and shape garments, textile furnishings and similar articles. Lays garments or other material on padded table of press. Pulls pressing head of machine on to surface of material, pressing head downward into contact with table and raises pressing head, re-arranges material and repeats process till pressing is complete. May oil and clean parts of machine. May press dry-cleaned saris by wrapping them by hand on calendars (Wooden-roller frames) and be designated as CALENDERAR, SARIS.

**8264.50 Kierman (Textile)** tends kier (vat for boiling yarn or cloth) for bleaching and dyeing. Puts chemicals in tanks and lets in water and opens steam to boil chemical solution. Puts cloth or yarn into kier with help of Piler ensuring that cloth or yarn is properly piled. Closes and secures mouth of kier and pumps chemical solution from tank into kier. Checks level and circulation of solution, controls temperatures and pressure in kier and ensures that yarn or cloth is properly boiled.

**8264.55 Scouringman, Woollen yarn; Scourer, Woollen Yarn** tends scouring machine for washing and cleaning woollen or worsted yarn preparatory to further processing. Prepares required amount of detergent by mixing soap and soda in water and pours it into bowls of scouring machine. Sets machine in operation and feeds woollen yarn into carrier of machine. Applies wooden presses to press yarn under rollers and allows it to pass through various processes of cleaning and washing in detergent to prepare it for further processing.

Checks pressure gauges to ensure proper functioning of machine. Stops machine on completion of washing and cleans and oils machine. May feed raw wool into scouring machine to clean dirt. May operate drier for drying cleaned wool.

**8264.59 Washer, Textile** teats yarn, cloth or finished goods to remove impurities or excess chemicals. Fills container with water. Raises water to required temperature and adds soap or other cleansing agent to it. Immerses material in, or feeds it through, container. Controls temperature of solution and period of immersion or speed of feeding. Passes material on for rinsing and drying or other treatment. Drains and cleans container. May do rinsing and drying of material.

**8264.60 Washing Machineman; Bleaching Machineman; Craft-Machineman; Chemicking Machineman; Desizing Machineman; Scouring Machineman** tends machine for washing and bleaching cloth. Checks level and flow of water or chemical solution in pit, passes end of cloth through loops and rollers and starts machine. Stops machine if cloth gets entangled in loops or rollers; makes necessary adjustments and runs machine. Supervises work of Pilers and cleans and oils machine.

**8264.62 De-Gummer, Silk** treats silk yarn, cloth or piece goods to remove natural gum. Fills container with water. Raises water to required temperature, adds soap or other cleansing agent to it and controls temperature of solution. Places skeins of yarns in boiling solution or on revolving arms of container. Attaches cloth or piece goods to suspended rods, canes or metal frames and moves these through solution. Rinses material in hot water. Drains and cleans container. May do drying.

**8264.64 Carboniser, Textile** treats wool, woollen rags or clothes to remove vegetable matter. Feeds material into bath containing weak solution of sulphuric or other acid to carbonise matter. Allows material to soak, passes it through rollers to remove solution and then transfers it to bath containing alkaline solution to neutralise acidity. Dries it and feeds it through rollers to pulverise matter. Shakes out matter by hand or machine.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8264.66 Scutcherman, Bleaching; Cloth Opener(Cotton Textile)** tends scutcher machine for opening folds and removing creases and twists formed in cloth due to washing and bleaching and to spread it into sheet. Starts machine and feeds one end of piled and twisted cloth into scutcher. Unfurls twisted cloth mechanically or manually and allows cloth to pass centrally through rollers to turn it into cloth sheet. Collects spread out cloth sheet at other end of machine. Cleans and oils machine. May operate washing and bleaching machine.

**8264.67 Dyed Yarn Operator (Textile)** tends machine that coats fiberglass sliver with dye: Places supply package on machine platform and threads sliver through guides, over tension bars and dye roller applicator, through traverse guide, and attaches sliver to takeup package. Pours or turns valve to admit dye solution into trough of dye roller applicator. Pushes lever to lower winding head and start machine. Observes flow of sliver through machine to detect breaks in sliver and ties broken sliver by hand. Cuts sliver, using scissors, and doffs packages of dyed sliver from machine.

**8264.68 Jiggerman (Cotton Textile)** dyes cloth by operating jigger machine. Fits undyed cloth roll on machine and passes one end of rolled cloth carefully through vat on to other roller for making rolls of dyed cloth. Prepares dyeing solution of required shade, pours it into jigger vat and ensures that cloth passing through vat is completely dipped in dyeing solution. Starts machine. Allows undyed cloth to unroll from roller, pass through colouring solution in jigger vat to get dyed and then get rolled on other roller. Takes proper care to maintain temperature and level of dye liquor and ensures proper dyeing of cloth without spots and creases. Gets sample of dyed cloth approved. Cleans and oils jigger machine. May operate automatic or ordinary jigger machine.

**8264.69 Dye Automation Operator (Textile)** controls and monitors programmed electronic equipment to bleach, dye, and finish cotton and synthetic sewing threads: Confers with operator of dye machines to obtain information needed to process customer orders, and records data, such as

number of dyeing machines to be used, production order numbers, and colour numbers specified for dye orders. Selects programmed procedures based on knowledge of dyeing processes and familiarity with affinity of dyes to specific thread types. Depresses keys of data-entry unit to enter required data into computer. Observes display screen to verify data entered, to ascertain computer response to instruction entered, and to determine compliance with procedural steps. Depresses keys to edit instructions when necessary and to input answers for primary or alternate steps in procedure. Hangs tags on dye board, during shift, to indicate steps in dyeing process for each machine. Confers with workers to determine reasons for delays in dyeing process, and examines dyeing machines and equipment to ascertain reason for malfunctions. Notifies supervisor of malfunctions, and records reasons for delays in log. Receives instructions from supervisor, such as alteration of dyeing temperature, omission of specific steps in dyeing process, or repetition of specific steps. Keys in dyeing instruction changes. Confers with operator on previous shift to ascertain drying steps to complete dyeing in progress.

**8264.70 Wool Dyer; Woollen Yarn Dyer** tends dyeing machine to dye wool or yarn. Puts by hand wool or yarn hanks into cage or bowl of machine. Lets in water to soak material. Mixes dye as per instructions in bucket or in overhead tank. Pours dye solution into bowl of machine or opens valve to let in dye solution through pipe. Starts pump to put heated dye solution into circulation through wool or yarn. Stops machine when wool or yarn has been dyed. Drains off dye solution by opening outlet. Lets in water from tap to cool wool or yarn and to wash off excess dye. Takes out dyed wool or yarn from machine.

**8264.72 Winch Dyer; Winchman; Piece-goods Dyer(Textile)** tends winch machine for dyeing cloth. Lets in water into tank from tap, mixes dyes by hand in bucket and pours dye solution into tank. Loops cloth round roller and stitches by hand two ends of cloth to make it an end less piece. Starts machine to pass cloth through heated dye solution for required length of time. Stops

## NATIONAL CLASSIFICATION OF OCCUPATIONS

machine when cloth is dyed. Takes off outlet plug to drain dyeing solution from tank. Lets water into tank. Starts machine to run cloth through water to cool it and or rinse off excess dye. Stops machine and takes out dyed cloth. May admit and stop steam in tank of dyeing machine as instructed. May also operate hydro-extractor machine for extracting water from cloth. Cleans and oils machine.

**8264.74 Cheese Dyeing Machineman; Cheese Dyer; Beam Dyer(Textile)** tends pressure dyeing machine to dye yarn wound on cheeses, cones, beams etc. Prepares washing and dyeing solution as required and pours or release it through valve into washing or dyeing tank. Fixes cheeses(with yarn) on spindles of carrier and fits them inside dyeing or washing vessel. Ensures proper vacuum inside vessel and starts machine to pump and circulate washing or dyeing solution inside tank and to heat it . Observes pressure and temperature recorded on gauges attached to tank and ensures proper dyeing. Collects sample of dyed yarn after specified time and gets it approved. Removes carrier from tank after dyeing, using crane, fixes it in drying vessel and dries yarn under hot air pressure. Cleans and oils machine.

**8264.75 Dyer, Garment** dyes garments to desired colours after washing, dry-cleaning or bleaching if necessary. Cleans garments by washing, dry-cleaning or bleaching to remove dirt, spots or foreign matter, if any. Prepares dye solution in container by mixing required colour in hot water; controls temperature of solution; tests strength of solution and colour by treating small piece of cloth. Immerses garment in solution and agitates it by hand or mechanically and inspects garment after prescribed period for desired colour. Stops, continues or adjusts treatment according to result of inspection. Removes garment from container when properly dyed and passes it on for rinsing and drying. Drains or cleans container. May do rinsing or drying. May dye leather garments using spray and be known as **DYE-SPRAYER**.

**8264.76 Drier; Drying-Range Attendant; Drying Machineman(Cotton Textile)** tends drying machine for drying bleached, dyed or

printed cloth. Feeds cloth into machine, ensuring that cloth passes through steam heated rollers without creases. Adjusts speed and ensures that cloth is properly dried. Cleans and oils machine. Is designated as **FRONT DRIER** or **BACK DRIER** according to feed or delivery end of machine on which worked.

**8264.77 Damping Machine Attendant; Damping Machineman; Cloth Conditioning Man** tends damping machine for spraying cloth with solution to prepare it for calendering. Fills tank of machine with solution, passes end of cloth through machine and runs machine for spraying solution on cloth. Ensures that cloth passes through machine without folds and is uniformly damped. Cleans machine.

**8264.78 Calenderman (Cotton Textile)** tends calendering machine for glazing and finishing cloth. Piles and fits roll of cloth at back of machine and feeds its loose end into calender rollers. Adjusts pressure on cloth by winding screws on rollers and starts machine. Observes gauges to control injection of steam into rollers for heating them to required temperature and ensures that cloth passing through rollers is without crease and is being uniformly pressed and glazed to desired finish. Stops machine, as required and removes nails , leather hits etc. noticed on cloth. Folds finished cloth at front end of machine. May work at feeding end as **BACK CALENDERMAN** or at receiving end as **FRONT CALENDERMAN**.

**8264.79 Miller; Milling Machineman(Woolen Textile)** tends milling machine to soften, shrink and strengthen woollen cloth. Passes one end of cloth through draft board to wooden rolls of milling machine. Stitches, by hand or machine, both ends of cloth to make it one endless piece. Starts machine and ensures that cloth runs through it smoothly. Pours soap solution over running cloth as required and checks texture of cloth milled. Stops machine after specified time, cuts, stitches and takes out cloth from machine. May check width of cloth at regular intervals during milling.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8264.80 Raising Machineman(Textile)**

tends raising machine which raises fibres on surface of cloth by means of wire-covered rollers and brushes for use as lint, blanket, flannel etc. Stitches ends of cloth pieces to obtain continuous piece. Passes one end of cloth through guides and rollers of machine and starts machine. Ensures that cloth passes through rollers without folds or crease and fibres are properly raised on its surface for use as flannel, lint, etc. Observes gauges and adjusts speed and pressure of rollers as required to avoid damage to cloth while processing. Gets sample of raised cloth approved and removes it from machine. Cleans and oils machine.

**8264.81 Stentering Machineman; Tenter Machineman;**

**Tentering Machineman(Textile)** tends stentering machine or frame which dries and restores original width of cloth after dyeing, washing or finishing. Adjusts stenter frames according to width of cloth. Starts machine. Ensures that cloth passes through machine without damage from stenter clips and is properly stretched. May be known as **ASSISTANT STENTERING MACHINEMAN** or **BACK STENTERING MACHINEMAN** if working at delivery end of machine. Cleans and oils machine.

**8264.82 Cropper; Cropping Machineman; Shearing Machineman(Textile)**

tends machine for cropping excess fibre from cloth for giving it smooth and even finish. Adjusts cropping gauge according to requirements. Passes end of cloth through machine. Starts machine. Ensures that cloth is properly stretched and passes through machine without creases.

**8264.83 Padding Machineman(Textile)**

tends padding machine for treating cloth with light preliminary coat of dye or chemicals preparatory to further processing. Mounts cloth roll on machine and passes loose end of cloth through guide-rollers and trough to roller at opposite side. Pours dye or chemical solution into trough of machine and ensures that cloth is completely dipped in it. Opens steam valve to heat dye or chemical solution to required temperature. Starts machine. Adjusts pressure on rollers and ensures smooth flow of cloth through

solution on to roller at opposite side. Cleans and oils machine. May rinse dyed material and pass it on to Drier for further processing.

**8264.84 Brushing Machineman(Textile)**

tends brushing machine for cleaning and removing threads and foreign material from surface of untreated cloth preparatory to further processing. Sets and adjusts roll of cloth, passes its end through rollers of machine. Starts machine and ensures that cloth is properly brushed and passes through machine without damage. Cleans and oils machine.

**8264.85 Crabbing Machineman(Woolen Textile)**

tends crabbing machine for setting weave and giving stability to woollen cloth. Sets cloth roll at feed end of machine. Passes end of cloth length through guides and roller of machine and fixes it with collecting cylinder for processing in hot water tank and winding it into roll. Fills tank with water and opens steam valve to boil it. Sets pressure of rollers and starts machine to rotate cloth through water and rollers. Observes pressure gauges periodically and maintains required pressure and temperature of water. Drains off hot water by opening outlet tap and lets its cold water to cool processed cloth. Collects processed cloth for subsequent operations. Cleans and oils machine.

**8264.86 Sanforizing Machineman**

tends sanforizing machine to shrink cloth to maximum extent. Opens steam valve to heat drying drums to required temperature, regulates speed of machine according to shrinkability of cloth and passes end of cloth length through guide rollers and damping, drying and stentering section of machine. Starts machine and watches cloth as it is drawn through it ensuring that cloth is properly damped, dried and stretched. Measures shrunk cloth and reports shrinkage. Observes gauges and adjusts machine where necessary or as instructed. Cleans and oils machine. May set feed rollers of required diameter to get optimum shrinkage.

**8264.87 Singeing Machineman; Singeing Man (Textile)**

tends singeing machine to burn fluff and rough protruding fibres on cloth to get better finish. Adjusts cloth roll at feed-end of machine. Runs loose end of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

cloth through guides and feeds it through rollers. Lights burners in machine and regulates flow of gas to obtain desired flame. Starts machine and observes cloth as it runs over burner flames. Avoids scorching of cloth, ensuring burning of fluff and unwanted threads and better finish to it. Adjust machine where necessary for creaseless flow and proper singeing of cloth. Cleans and oils machine.

**8264.90 Bleaching, Dyeing, Printing and Finishing Operatives** perform variety of routine and low skilled tasks in washing, bleaching, dyeing, printing and finishing of textiles and may be designated according to nature of work performed, such as:

**Piler; Endpuller** piles cloth in kier or pulls end of cloth at washing or bleaching machine.

**Hydro-Extractor Attendant** tends hydro-extractor to extract water from cloth or yarn.

**Drying Machineman, Woollen Yarn** feeds wet woollen or worsted yarn hanks to yarn drying machine and removes dried yarn hanks coming out of machine.

**Back Tender, Cloth Printing** assists Printer in preparing machine for new pattern performing all heavy work, such as lifting rolls of cloth and printing rollers into place, making adjustments on printing rollers tightening nuts and screws, tending machine in operation, regulating cloth tension screws, etc.

**Grey Cloth Tender Printing** tends back-grey cloth, which is run under the white cloth being printed in printing machine to act as foundation to absorb any colour applied beyond edge of white cloth.

#### **8265 FUR AND LEATHER PREPARING MACHINE OPERATORS**

Fur and leather preparing machine operators operate and monitor various machines which prepare leather or treat fur or wool bearing pelts.

**8265.10 De-hairer, Machine** removes hair from hide or skin by stretching it through machine rollers fitted with blunt spiral

blades. Collects and keeps limed skins near machine for de-hairing. Places skin or hide over lower roller of machine stretching it by hand to remove wrinkles; starts machine to rotate upper roller of machine fitted with blunt spiral blades; operates foot pedal of machine to raise lower roller of machine with skin on for de-hairing; adjusts blunt spiral blades of upper rotating roller to shave or de-hair skin or hide; lowers roller and changes position of skin for de-hairing remaining portion of skin and repeats process till entire skin is de-haired completely, ensuring that skin is not damaged while de-hairing. May clean and repair machine. May operate fleshing machine.

**8265.20 Flesher, Machine** removes flesh from skin or hide by passing it through machine rollers fitted with sharp blades, keeps de-haired skin over lower roller of machine, inner side turned upwards; smoothes out wrinkles by hand; starts machine to rotate machine rollers; presses foot treadle of machine to bring lower roller carrying hide, against roller fitted with revolving knife blades; adjusts roller to scrape flesh particles from skin; feeds half of hide through rollers; depresses pedal to rollers and removes hide; reverses hide and repeats operation to scrape other half of hide; ensures that skin or hide is not damaged or cut by blades when scraping; piles scrapped hides. May clean and oil machine. May set machine with appropriate cutters after grinding.

**8265.25 Scudder, Machine** removes epidermis hair roots, pigment cells and lime salts from grain side of hide or skin by passing it through machine rollers fitted with blunt blades. Collects de-haired and fleshed skins or hides and keeps them near machine; spreads skin or hide with hair side facing upwards on roller of machine and stretches it by hand to smooth out wrinkles; starts machine to rotate rollers fitted with blunt knife blades; presses paddle to bring roller with hide against sorting roller equipped with knife blade (scudding knife) to remove hair roots, pigment cells etc; reverses hide and repeats operation to scrape other half of hide; ensures that skin or hide is not damaged in process by knife cuts; removes de-haired skin from machine and places it

## NATIONAL CLASSIFICATION OF OCCUPATIONS

near machine. May clean and oil machine. May set machine with fresh knife blades.

**8265.30 Hide and Skin Setter, Machine; Leather Setter, Machine** operates machine fitted with blunt knife to set grains on hide or skin and to smoothen leather. Spreads leather stretched over machine table; starts machine and observes blunt edged knife fitted in machine; rubs surface of hide or skin with pressure to set grains and remove wrinkles; changes position of leather to get entire surface of leather set by machine and to make it smooth. May oil and clean machine.

**8265.32 Hide Splitter, Machine** sets and operates machine fitted with horizontal endless belt type knife to split hide edgewise to form two or more pieces or to give uniform thickness. Starts machine and adjusts thickness of cut; places hide on machine table and smooths out wrinkles; guides hide between machine rollers which force edge of hide against machine knife; removes split hides from machine or directs helper to do so; checks split hide for accuracy and adjusts guides if necessary; ensures that knife blade is sharpened automatically by emery wheels fixed to machine; adjusts emery stone wheels if not in position for correct sharpening of knife blade. May clean and oil machine.

**8265.35 Hide Shaver, Machine** operates machine fitted with spirally fixed knives to reduce thickness of hide or skin to uniform size. Places hide on machine table with flesh side upward; starts machine and presses foot pedal of machine to raise table with leather on to bring it closer to revolving wheel fitted with spirally fixed knives; holds skin or hide tightly as it is shaved by knives of rotating wheel; changes position of leather to shave rest of surface; checks visually that shaving of leather is even and to required thickness; ensures that emery wheels fitted to machine sharpen knife blades automatically in process of shaving; cleans and oils machine. May repair machine.

**8265.40 Staker, Machine** operates machine fitted with movable arm with roller, which moves backward and forward over edge of blunt iron plate, to make conditioned hides soft and flexible. Conditions hides on

previous day by keeping in moist saw dust; adjusts position or gap of iron plate fitted to machine depending on type of hide used; starts machine and stretches hide on edge of machine and feeds end of hide into moving arm of machine between roller and metal plate; holds one end of hide tightly by leaning heavily on hide (using body weight for holding hide) as hide is being flexed by moving rollers over blunt metal plate; changes position of hide or inserts fresh area of hide into rollers as moving arm comes forward to soften hide; keeps softened or flexed hide at central point. May oil and clean machine.

**8265.45 Leather Buffer, Machine; Buffing Machine Operator, Leather; Burmisher, Finishing Wheel Operator** tends machine that buffs hides to specified finish. Turns set screws to regulate distance between rollers, according to thickness of hide; inserts hide between rollers and starts machine; holds half of hide while rollers buff surface of other half; repeats buffing operation on unbuffed portion of hide. May be designated according to hide buffed as **BLACK-LEATHER BUFFER; WHITE KID BUFFER**. May tend machine equipped with abrasive covered rollers that form nap on surface of leather and be designated **SUEDING-WHEEL OPERATOR**.

**8265.50 Leather Glazer, Machine; Glazing Machine Operator** glazes or gives glossy finish to leather by operating glazing machine fitted with movable hard glass roller. Positions leather on bed of machine and depresses pedal to lower hard glass roller into leather; starts machine to move roller over leather; shifts position of leather under roller to impart specified finish to entire surface; pulls finished leather from machine table and stacks it separately. May treat surface of leather with oil before glazing depending on type of leather.

**8265.60 Rolling Machine Operator, Leather** tends roller machine that smooths surface of leather by passing through moving rollers. Positions leather on bed of machine and depresses pedal to lower roller onto leather; starts machine to move roller over leather; adds or removes counter weights to rollers depending on type of leather and nature of rolling required; shifts position of

## NATIONAL CLASSIFICATION OF OCCUPATIONS

leather under roller to impart specified finish to entire surface. May be designated according to section of hide rolled as **BACK ROLLER; BELLY ROLLER** or according to condition of leather rolled as **DRY ROLLER; RETANNED-LEATHER ROLLER; WET ROLLER.**

### **8265.70 Tanner, Rotary Drum, Continuous Process (Leather Mfg.)**

operates rotary drum to remove hair and other solubles from hides or skins and convert hides or skins into leather or glue during continuous process: Loads drum with hides, skins, or other animal stock. Turns valves to admit water and steam to drum. Weighs and mixes specified amounts of lime, salt, and other chemicals in mixing tank or drum, following formula, to prepare liming, deliming, pickling, and tanning solutions used in treating hides or skins. Turns valve to transfer solutions to drum during specified processing cycles. Moves lever to activate drum that cleans, washes, pickles, and tans hides or skins. Replaces solid door of drum with perforated door at specified intervals to filter waste from drum at completion of cycles. Verifies salinity and temperature of solutions, using salinometer and thermometer. Transfers tanning solution to drum and tans hides or skins.

### **8265.80 Leather Measuring Machineman**

operates machine to measure size of pieces of leather. Sets machine indicators reading at zero and inserts piece to be measured into feed rolls of machine. Records area registered by indicator. May maintain account of leather pieces measured.

**8265.90 Fur and Leather Preparing Machine Operators, Other** include workers who operate and monitor various machines which prepare leather or treat fur or wool bearing pelts not elsewhere classified.

## **8266 SHOEMAKING AND RELATED MACHINE OPERATORS**

Shoemaking and related machine operators operate and monitor machines which produce and repair standard or special footwear, handbags and other accessories, mainly made of leather.

**8266.10 Pounding Machine Operator (Footwear)** operates machine to pound (grind off) roughness from lasted shoe-uppers. Starts machine. Holds and rotates shoe against emery wheel to flatten lower edge of lasted shoe - upper, smooth rough edges and even heads of nails. Removes, cuts, off or drives in any protruding nails. Cleans and oils machine and requests any needed repairs.

**8266.12 Heel Breaster, Machine (Footwear)** operates heel breaster machine to cut breast (forward part) of shoe-heel according to style-specifications. Selects knife and cutting block and sets knife of required shape and size in machine. Adjusts cutting block and press plate on machine. Collects heels and places one of them on block. Presses foot pedal to bring down knife over block. Presses foot pedal to bring down knife over heel for cutting its forward part. Ensures accurate cutting and repeats process for cutting breasts of other heels. Stores them separately after cutting. Cleans and oils machine and gets mechanical defects removed when necessary.

**8266.14 Heel Slugger, Machine (Footwear)** operates slugging machine for driving row of slugs (wire nails) all along outer edge of top piece of heel to hold it securely in position and increase durability. Collects wire coil and sets it in wire container. Checks condition of awl (tool) and replaces it if defective. Adjusts machine and sets spacer according to size of heel and spacing of slugs required. Collects heel, places it with top piece under slugging head of machine and ensures correct setting. Presses foot pedal to start machine, which automatically drives slugs all along outer edge of heel top piece. Examines slugging visually and ensures correctness. Presses foot pedal to lower slugging stand and removes slugged heel from slugging head. Repeats process, watches operation of machine and refills container with slugging wire coil as necessary. Cleans and oils machine, gets defects removed.

**8266.16 Heel Builder, Machine (Footwear)** operates heel building machine to build up shoe heel by glueing and nailing heel lifts (small leather pieces) together. Glues heel lifts previously assembled by Heel

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Assembler or collects and glues them by hand. Places glued lifts one over another to build up heel to required size and height and retains them intact. Selects mould according to size of heel to be built. Sets and adjusts it in machine. Puts nails in die holes and places glued lifts in mould. Presses foot pedal to start machine which drives nails from die holes through lifts to hold them in position and make complete heel. Takes out built heel from mould and ensures proper nailing by touch and sight. Cleans and oils machine and gets defects removed to keep it in working condition.

**8266.18 Sole Rounding Machine Operator** operates sole rounding machine to trim insoles and outsoles of shoe to required shape and size. Collects master shape wooden pattern of required size. Sets and screws it in machine. Sets cutting knife and pressing plate in machine. Places sole on maker shape wooden pattern, operates hand wheel to lower pressing plate on top of sole to hold it firmly. Turns guiding cam lever for positioning knife to cutting point. Depresses foot pedal to start machine and regulates movement of cutting knife to go round sole along edge of pattern and cut it to required shape. Releases foot pedal to stop machine and turns lever to take off knife from sole. Reverses hand wheel to raise up pressing plate and removes rounded sole from machine. Checks rounding visually and ensures desired accuracy. Cleans and oils machine and gets defects removed if any. May be designated according to type of sole rounded such as **INSOLE ROUNDING MACHINE OPERATOR, OUTSOLE ROUNDING MACHINE OPERATOR**, etc. May operate improvised rounding machine where opening of space for insertion of sole and extent of rounding is regulated by foot pedal and actual insertion and rounding is guided by hand. May set channelling knife in rounding machine for channelling of sole.

**8266.20 Nailer, Machine; Nailing Machine Operator; Tacking Machine Operator (Footwear)** operates footwear nailing machine to nail or tack shoe parts together. Collects nails of required type and size and checks them for sharpness of points. Fills them by hand in hopper of nailing machine. Collects shoe parts to be nailed. Starts

machine. Places or holds shoe parts to be nailed under nailing head of machine. Presses pedal to automatically release and drive nails through shoe parts to be joined. Releases pedal and takes out nailed pieces. Checks and ensures correct nailing by sight and touch. Cleans and oils machine and gets defects removed when required to ensure proper functioning. Is designated according to part of shoe nailed or tacked such as **HEEL SEAT NAILER; TOP-LIFT NAILER; IN SOLE ATTACHER; INSIDE HEEL ATTACHER**, etc.

**8266.22 Cutter, Machine, Clicker Machine; Press Cutter (footwear)** operates hand or foot-press to cut footwear components from sheets of leather. Selects and spreads on table of machine leather of thickness and quality appropriate to component to be cut (heel, tongue, sole, toe-cap, etc.) Notes direction of stretch and any defective areas in leather. Plans cutting to obtain maximum number of useable pieces. Places die on leather according to plan and operates hand or foot lever to force die through leather and cut out piece. Continues cutting until leather is used up. Bundles cut pieces for removal. Oils and cleans machine and reports defective operation for correction. May be designated as **UPPER CUTTER, BOTTOM CUTTER, LINE CUTTER**, etc. according to component cut.

**8266.23 Leather Cutter, Machine (Harness and Saddle Making)** cuts leather by machine for use in making harness and saddles. Fits appropriate guide in machine and inserts leather under knives to cut components to desired shape. Checks sample piece for accuracy and continues production. May sharpen and change knife occasionally. May cut leather pieces using hand knife (rapi).

**8266.25 Welt Sewer, Machine; Welt Sewing Machine Operator** operates sewing machine to sew narrow strip of leather (welt) to lip of insole of shoe through upper and lining. Checks needle and awl of machine and replaces them if they are out of trim. Fixes spool of sewing cord in box container and draws it through heated wax, guide and needle. Puts welt in welt guide and depresses foot pedal to start machine. Manipulates carriage of shoe with both



## NATIONAL CLASSIFICATION OF OCCUPATIONS

hands keeping sole upward under needle, awl and welt guide to stitch through upper, lining and insole lip. Feeds thread and welt when necessary. Ensures decorative value of welt as well as its proper stitching to hold it intact with upper, lining and insole lip. Cleans and oils machine and gets defects removed. May sew extra welt if necessary. May sew welt manually using awl and waxed cords.

**8266.26 Skiver, Machine (Footwear)** skives (tapers) leather components of footwear on machine for joining. Observes parts to be skived and estimates appropriate depth and angle of skive. Adjusts screws on machines to set feed rolls and cutting angle of knives. Inserts part between feed rollers and depresses pedal to operate knives. Matches skived parts and occasionally adjusts angle or depth of cut in order to obtain smooth joint without ridge. Changes dull knives; cleans and oils machine and reports malfunctioning for repairs. May join skived parts by glueing and stitching. May do hand skiving.

**8266.27 Welt Beater, Machine (Footwear)** beats and flattens welt of shoe on welt beating machine to bring welt in correct position for attachment of outsole. Steps on pedal to start machine. Places welt between anvil and hammer of machine and guides shoe by hand to beat welt into position. Cleans and oils machine. May also apply cement or glue to insole by hand brush and place bottom filling.

**8266.28 Pullover Man, Machine; Pulling Over Machine Operator (Footwear)** operates machine which tacks shoe upper temporarily to last for shaping. Puts upper on last and holds it firmly in place with pincer frame. Presses foot pedal to close top and side jaws on edge of upper. Collects and fills nail box in machine with nails. Depresses pedal to nail toe and sides of upper automatically to insole. Removes and replaces any defective nails using hand tool. Removes last from machine, checks for proper nailing and drives one or two nails manually if necessary. Beats top and sides of upper with hammer to shape it to last. Cleans and oils machine and requests repairs when needed.

**8266.30 Stapler; Stapling Machine Operator (Footwear)** operates stapling machine to attach welt and upper with insole. Places spool of staple wire on stand of machine. Threads staple wire through machine and adjusts tension. Places welt through guide. Holds shoe with both hands keeping sole upwards under stamping head of machine. Steps on pedal to start machine and guides shoe with both hands to get staples driven along sides of shoe through welt, upper and insole. Cleans and oils machine.

**8266.32 Laster, Machine; Lasting Machine Operator** operates machine to pull upper tightly over shoe last and tack sole upper to insole. Pulls lining over last with hand pincers. Places shoe with sole upward against guide of machine and below tack hammer. Presses pedal to start machine and manipulates shoe to get upper permanently tacked along edges of insole. Watches operation and ensures proper tacking and shaping of shoe. Cleans and oils machine and request repairs when needed.

**8266.35 Sole Stitcher, Machine; Sole Stitching Machine Operator (Footwear)** operates sole stitching machine to attach outsole of welt or upper and insole of shoe. Places spool of sewing cord on stand of machine and draws cord through tension guide and sewing needle. Sets bobbin in machine. Adjusts machine for size, tension and number of stitches per inch. Sets shoe with sole upwards on table rest of machine underneath needle and steps on pedal to start machine. Guides shoe with hand as needle sews around shanks (waist) and forepart through outsole to upper surface of welt or insole. Stops machine when sole is stitched and removes show from machine. Ensures that stitches are properly embedded in channel, cut in outsole. Replaces broken or defective needle and empty spool and bobbins. Oils and cleans machine. May be designated according to type of machine on which worked such as **BLAKE-SEWING MACHINE OPERATOR LOCK-STITCHING-MACHINE OPERATOR OR DOUBLE-STITCHING MACHINE OPERATOR**.

**8266.36 Seat Laster, Machine; Seat Lasting Machine Operator (footwear)**

## NATIONAL CLASSIFICATION OF OCCUPATIONS

operates seat lasting machine to fasten upper heel seat to insole. Operates hand wheel to set machine for size of last. Inserts last with attached upper on heel-seat of machine and heel part into seat-mould. Depresses pedal to raise heel seat to tacking position. Starts machine which automatically draws upper and lining evenly over heel-seat and drives tacks to fasten upper to insole. Removes last with upper from heel-seat and examines for correct shape and tacking. Cleans and oils machine and requests any needed repairs.

**8266.38 Splitter, Machine; Sole Splitter; Bottom Splitter; Splitting Machine Operator (Footwear)** operates splitting machine which shaves off rough or flesh side of footwear components such as out-soles, insoles, heel-lifts, welts etc. to required thickness. Examines components visually and decides amount of splitting required. Checks sharpness of splitting knife by sight and touch and adjusts it according to thickness of component required. Switches on machine. Feeds component into feed rollers of machine to shave off fleshy and rough stuff to get surface to required thickness. Watches operation and ensures accuracy in splitting. Places split components manually in container. Oils and cleans machine and gets defects removed when required. May replace blunt or damaged knife in machine.

**8266.40 Heeler, Machine; Heel Attacher, Machine; Heel Attaching Machine Operator** nails leather and rubber heels to shoes by machine. Collects heels of proper size to be attached. Sets metal heel-mould of required size in machine. Collects nails of required size, examines them for sharpness of points and feeds them into heel mould. Sets and adjusts pressing plate and nail driver and ensures proper functioning. Places shoe on mould and positions heel on shoe. Starts machine which automatically drives nails through heel and heel-seat and clinches them to insole. Removes shoe from mould and checks accuracy of joining. Cleans and oils machine and gets defects removed if any. May attach heel by hand. May nail iron tips in heel.

**8266.42 Heel Compressor, Machine (Footwear)** operates heel compressing machine to compress heels and increase their

durability. Selects top and bottom die of required shape and size and sets them in machine. Determines amount of compression required and adjusts gauge or bottom die accordingly to effect required pressure. Collects and puts heel on bottom die fitted on machine table or places them (heels) one by one on carrier of machine which carries them under compressing die. Switches on machine and presses foot pedal to bring top die on compressing die (bottom die) for pressing and stretching heel to its full flexibility (according to set pressure and shape in die) and stabilize durability. Checks thickness of compressed heels, sorts them according to sizes and ensures uniform compression. Oils and cleans machine and gets defects removed as and when required.

**8266.45 Sole Leveller, Machine, Sole Levelling Machine Operator** levels soles of shoe on sole levelling machine. Adjusts machine according to size of shoe to be levelled. Places shoe on last stand of machine with sole upwards. Marks uneven portions of surface of sole and levels it by beating with hand hammer. Starts machine and rollers. Steps on foot pedal to raise hoe and let moving rollers roll over its sole to press and level it. Removes shoe from stand and ensures proper levelling. Cleans and oils machine and gets defects removed if any. May apply cement with brush while levelling.

**8266.50 Trimmer, Machine; Machine Trimmer (Footwear)** operates trimming machine to smoothen and trim various parts of shoe. Examines parts of shoe by sight to determine extent of trimming required. Sets proper cutting tool in holding disc of trimming machine. Switches on machine. Holds shoe with both hands and manipulates edges to be trimmed against revolving cutter to trim surplus portions and make surface even. Ensures accurate trimming to avoid damage to other parts of shoe. Cleans and oils machine and gets defects removed if any. May change and grind blunt tools. May operate scouring or sand paper machine to give finishing touches to various parts of shoe. May do trimming by hand.

**8266.55 Edge Setter, Machine (Footwear)** operates edge-setting machine to polish edge of sole of shoe for giving shape and desired

## NATIONAL CLASSIFICATION OF OCCUPATIONS

finish to it. Selects heating copet (iron) according to thickness of sole and fits it in machine holder. Turns on gas flame or lights spirit-lamp fitted to machine. Turns holder containing copet over gas flame or spirit lamp as appropriate to heat it to required temperature. Switches on machine. Holds shoe in both hands against revolving copet and manipulates its (shoes) movement to burnish its entire edge. Applies coating of wax with wax stick on burnished edge of sole. Repeats process of burnishing after waxing to effect desired polish, shape and finish. Cleans and oils machine and gets defects removed if any. May apply solution over entire edge of sole to fill small holes.

**8266.60 Edge Burnisher; Edge Burnishing Machine Operator; Edge Polisher (Footwear)** burnishes skived edges of leather uppers of shoes by passing them through burnishing machine. Switches on to heat burnishing iron and ensures stipulated performance of guides and roller. Sets skived edge of upper under iron against guides, keeping edge of one piece over other, guides upper under burnishing iron. Regulates heating of burnishing iron by pedal and ensures desired burnishing effect on edges of skived leather. Cleans and oils machine and gets defects removed if any.

**8266.65 Heel Padding Machine Operator; Heel Polisher** polishes heel of shoe on heel padding machine. Switches on padding machine. Holds wax stick against heated roller of machine to get wax carried to pad or disc of machine. Holds shoe with both hands and manipulates heel against waxed pad for application of hot wax on it (heel). Presses heel with hands against revolving brush of machine to shine and effect smooth finish. Cleans and oils machine and gets defects removed if any.

**8266.68 Eyeletting Machine Operator; Eye Letter; Eyelet Setter; Grommet Machine Operator** operates eyeletting machine which punches holes and places eyelets in holes for lacing shoes. Collects uneyeletted shoes and eyelets and sorts them out according to size, shape, etc. Fills machine hopper with required kind of eyelets. Sets machine and adjusts eyelet spacing plate. Places side of shoe upper to be eyeletted on machine die. Depresses

pedal to start machine which automatically punches holes and fixes one eyelet in each hole. Removes eyeletted shoe from machine die and checks for proper eyeletting. Cleans and oils machine and gets defects removed, if any.

**8266.70 Rivetting Machine Operator; Sole Screwing Machine Operator (Footwear)** operates rivetting machine to screw brass screw wire to sole of footwear. Collects spool (hollow cylinder for winding yarn or wire) of brass screw wire. Opens spindle cover and sets spool on it. Draws end of wire through nozzle, closes spindle cover and sets machine at high or low speed as required. Places shoe in horn of machine with sole upwards and starts machine. Presses pedal to raise horn till sole touches nozzle. Sets machine for feed and speed of screwing. Guides shoe with both hands and ensures screwing together of insole, middle sole and sole at desired points. Replaces spool of screw wire as necessary. Removes shoe from machine and checks for proper screwing by touch and sight. Cleans and oils machine and gets defects removed.

**8266.90 Cutting, Lasting and Sewing Machine Operators, other** perform variety of routine and low skilled tasks in manufacture of shoes using appropriate machines or hand tools and may be designated according to nature of work performed such as:-

**Crimping Machine Operator** operates crimping machine to give curved shape and wax finish to stitches.

**Welt Cutter** cuts welt from leather sheet using knife.

**Welt Grooving Machine Operator** operates grooving machine to cut groove in welt of shoe.

**Channel Opener** operates channel opening machine to slit sole of shoe for stitching.

**Heel Assembler** assembles heel lifts for making heel.

**Last Assembler** assembles lasts and closed uppers of appropriate size and shape as per specification.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**Bottom Filler** nails shank to insole at waist of shoe and fills bottom of shoe with sawdust, pieces of leather etc.

**Upper Cleaner** cleans upper of shoes with water and brush and applies coating of prima and dressing.

**Stitch Cutter** cuts stitches on insole and sole evenly using hand knife.

**Edge Polisher, Hand** polishes edges of footwear by applying chemical compound with brush.

**Decorating Machine Operator (Footwear)** operates decorating machine for making decorative patterns on insole.

**Cementer (Footwear)** applies cement glue by brush on footwear components for sole pressing and to ends of upper straps for pasting them on insole.

**Paster (Footwear)** collects sole and midsole from conveyor rack and pastes them together by pressing them with hands.

### 8268 SUPERVISORS AND FOREMEN, SPINNING, WEAVING, KNITTING, DYEING AND RELATED PROCESSES

Supervisors and Foremen, spinning, weaving, knitting, dyeing and related processes supervise workers in one or more departments of textile or hosiery mill and look after production and maintenance of machines and equipment and harness and saddles, fancy and other leather goods and their non-metallic components.

**8268.10 Jobber (Textile)** supervises workers in specified section of textile plant and maintains machines and equipment in peak operating order. Plans work procedures and allocation of workers in accord with production goals and availability of machines. Sets-up and adjusts looms and other machines to best performance before turning over to workers. Makes minor repairs to restore them to top efficiency or to keep them in operation and avoid production delays. Assembles and distributes raw materials and supplies. Moves constantly about in work area to supervise workers and examines work performed to assure that

quality and quantity standards are being met. Introduces changes in manufacturing processes as directed. Maintains simple production records. Controls tools in tool room, enforces fire and safety regulations and transmits workers' grievances to higher authority. May assist in overhauling, repairing and erecting or dismantling of machinery. May be designated as **JOBBER, CARDING; JOBBER, SPINNING; FANCY JOBBER; JOBBER, COMBING; JOBBER, DOFFING; SIDE JOBBER; LINE JOBBER; JOBBER, REELING, JOBBER, DRAWING; JOBBER, SIZING; JOBBER, DYEING;** etc. according to work performed.

**8268.20 Supervisor and Foreman, Hosiery** supervises workers in specified section of hosiery mill for manufacture of socks, vests, gloves and other hosiery products. Guides Knitting Jobber to set machine according to type of article to be manufactured and ensures upkeep of machines and equipment in perfect working condition. Moves about in work area, checks production and ensures correct manufacture. Suggests modifications as necessary and enforces safety and other rules and regulations. May keep records and registers and submit reports.

**8268.30 Supervisor and Foreman, Tanning and Pelt Dressing** supervises and guides workers engaged in processing tanning and dressing hides, leathers and pelts and ensures prescribed quality and required finish. Guides workers in tanning and pelt dressing processes such as liming, de-liming, fleshing, de-hairing, stretching, chemical or bark tanning, matching currying, dressing etc. as necessary and ensures specified quality and required finish of product. Arranges for materials, chemicals and other ingredients, enforces safety and precautionary measures and ensures proper utilisation of men, materials, plants and equipment supervised. Maintains records and registers and submits reports and returns as prescribed. May specialise in any materials, plants and equipment supervised. May specialise in any particular tanning or dressing operation. May be designated according to section or work supervised. (Excluded are Leather Technologist described elsewhere).

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8268.40 Supervisor and Foreman, Shoe Making** supervises and guides workers engaged in manufacture of footwear and their components. Studies design and sketches of shoes or other types of footwear to be made. Selects right type of leather, canvas and other raw materials, gets machines and assembly line set, distributes work according to system of manufacture and conducts operations to ensure correct use of men and materials. Checks components at various stages of production, arranges regular flow of materials for line assembly work and gets snags removed as noticed. Ensures correct production and gets batches checked by Examiner. Maintains production log, material and other accounts and serves as liaison between workers and management. May supervise complete shoe-making or one or more of its sections and be designated accordingly.

**8268.50 Supervisor and Foreman, Harness and Saddle Making** supervises manufacture of harness and saddle and ensures production to required specifications. Studies drawing or sample of saddle or harness to be made. Selects right type of leather, felt, stiffeners, sheep wool, and other materials required and issues them to workers according to parts or components to be made. Supervises cutting, sizing, shaping, forming, looping, fitting of metal parts and other operations, guides workers as necessary and ensures correct use of men and materials. Checks production at every stage, gets defects removed if any and ensures conformation to prescribed specifications. Checks completed articles with measuring tape and gauges and gets them polished and finished. May specialise in manufacture of any particular type or component of saddle or harness and be designated accordingly. May make saddles to order to suit customer's specific requirements.

**8268.60 Supervisors and Foreman, Leather Goods Making** supervises manufacture of fancy and other leather goods such as gloves, suitcases, purses, belts, whips, etc. according to customer's choice or latest designs. Studies designs from catalogue or samples and decides manufacturing process. Arranges for required type and quality of materials and gets working pattern made to suit

specifications. Instructs and guides workers as required and ensures correct operations and quality and finish of ultimate product. May specialise in manufacture of any particular items and be designated accordingly.

**8268.90 Supervisors and Foremen, Spinning, Weaving, Knitting, Dyeing and Related Processes, Other** include all other supervisors and foremen engaged in supervising textile and hosiery manufacturing and finishing processes, not elsewhere classified.

### **8269 TEXTILE, FUR AND LEATHER PRODUCTS MACHINE OPERATORS n.e.c**

This Family covers textile, fur and leather products machine operators not elsewhere classified in Group 826, Textile, Fur, and Leather Products Machine operators. For instance, in this Family those workers should be classified who are engaged in operating and monitoring machines which make hats or miscellaneous articles such as braids or other trimmings.

**8269.10 Folder, Machine; Folding Machineman(Textile)** tends machine that folds cloth into measured lengths. Feeds cloth through machine rollers carefully to avoid creases in folded cloth. Watches for and cuts out defective portions. Cuts cloth at specified lengths and stack pieces. May be designated as **FRONT MACHINE FOLDER** if working at receiving end of machine and as **BACK MACHINE FOLDER** if working at feeding end of machine.

**8269.20 Splicing Machine Operator, Automatic (Textile)** tends machine that splices (joins) ends of partially filled spools of tire cord and winds cord from one spool to other: Places spools of cord on machine spindles and pulls ends of cord through holding device under needle of sewing machine. Depresses pedal to start sewing machine that automatically sews ends of cord together, cuts thread at end of sewing cycle, and trims excess ends of cord. Removes spliced ends from holding device. Pulls lever to start spindle that winds spliced cord from one spool to another and to turn

## NATIONAL CLASSIFICATION OF OCCUPATIONS

table, moving succeeding spindles into splicing position. Doffs full spools of cord as table turns complete circle. Mounts cones of thread on machine spindles, ties thread from spindle to thread in machine, and pulls thread through machine guides, tension springs, and needle to thread sewing machine.

**8269.30 Balling Machine Operator (Textile)** tends machine that winds thread, twine, or yarn into balls preparatory to shipping or further processing; Places supply cones or spools on creel rack and threads yarn ends through guides and tension device. Pushes core over spindle of machine or wraps end of thread around shaping device of coreless winder. Pulls lever to start machine to wind specified amount of thread. Doffs balls of thread, using knife to cut thread. Inspects balls for defective winding or soiled thread. May insert labels under thread. May place ball on device to crush center and wrap end of thread around center as binder. May pack balls into boxes for shipment.

**8269.40 Press Operator** tends machine that steams and presses wrinkles from woollen cloth: Starts press and manually guides cloth into machine and under weighted cylinder which steams material and presses out wrinkles. Turns handwheel to adjust cylinder pressure according to type of cloth processed. Sews end of new material to end of material in press, using sewing machine. Cleans and oils pressing machine.

**8269.90 Leather Cutters, Lasters and Sewers and Related Workers, Other** include all other Leather Cutters, Lasters and Sewers and Related Workers engaged in making fancy or other leather articles by processes of cutting, lasting, sewing, shaping, etc., not elsewhere classified.

### **827 FOOD AND RELATED PRODUCTS MACHINE OPERATORS**

Food and related products machine operators operate and monitor machines which process foodstuffs and manufacture food and related products for human and animal consumption.

### **8271 MEAT AND FISH PROCESSING MACHINE OPERATORS**

Meat and fish processing machine operators operate and monitor machines used to slaughter animals, trim carcasses, prepare standard meat or fish cuts, and manufacture meat and fish products.

**8271.10 Fish Curer** cures fish by dry-salting, brining, drying or smoking. Dry-salts fish in bulk by turning them over on heavily salted floor with shovel and then shovelling them into barrels. Brines fish by canning them into tanks or barrels with salt or with brine solution. Dries fish in sun, in drying room or in ovens. Smokes fish by placing them in smoke chamber until fish has turned to desired colour. Hangs fish on racks or poles, or places them in trays in drying room, oven or out in sun.

**8271.90 Meat and Fish Processing Machine Operators, Other** include workers who operate and monitor machines used to slaughter animals, trim carcasses, prepare standard meat or fish cuts, and manufacture meat and fish products not elsewhere classified.

### **8272 DAIRY PRODUCTS MACHINE OPERATORS**

Dairy products machine operators operate and monitor machines which process milk and cream and make dairy products.

**8272.10 Pasteurising Plant Operator; Pasteuriser (Dairy)** operates pasteurizing plant to remove harmful bacteria from raw milk and other dairy products. Pumps cold raw milk or other dairy products through a heating tank; maintains liquid at required temperature for a specified time and pumps it through cooling unit into bottling machine; checks thermometers and gauges and makes necessary adjustments to ensure that liquid is properly pasteurized; cleans and sterilizes tanks and inter-connecting pipes; disconnects filter and renew or cleans straining devices. May drain out pasteurized milk into container through tap fitted in plant.

**8272.20 Mixing Tank Operator** tends mixing tank to mix skimmed milk powder and water to form toned milk. Opens taps to

## NATIONAL CLASSIFICATION OF OCCUPATIONS

admit specified quantity of water into tank as indicated by meter; measures required quantity of milk powder and adds it into tank; switches on machine which churns and mixes powder and water into milk; tests sample to ensure conformity to specification, using testing apparatus; empties tank, cleans and sterilizes equipment.

### **8272.30 Dairy Processing Equipment**

**Operator** operates continuous flow or vat-type equipment to process milk, cream, and other dairy products, following specified methods and formulae: Connects pipes between vats and processing equipment. Assembles fittings, valves, bowls, plates, disks, impeller shaft, and other parts to equipment with wrench to prepare for operation. Turns valves to pump sterilizing solution and rinse water through pipes and equipment and spray vats with atomiser. Starts pumps and equipment, observes temperature and pressure gauges, and opens valves on continuous flow equipment to force milk through centrifuge to separate cream from milk, through homogeniser to produce specified emulsion, and through filter to remove sediment. Turns valves to admit steam and water into pipes to pasteurise milk and to circulate refrigerant through coils to cool milk. Starts pump and agitator, observes pressure and temperature gauges, and opens valves on vat equipment to fill, stir, and steam-heat milk in vat. Pumps or pours specified amounts of liquid or powder ingredients, such as skim milk, lactic culture, stabilizer, neutraliser, and vitamins into vat to make dairy products, such as buttermilk, chocolate milk, or ice cream mix. Tests product for acidity at various stages of processing. Records specified time, temperature, pressure, and volume readings.

**8272.90 Dairy Products Machine Operators, Other** include workers who operate and monitor machines which process milk and cream and make dairy products not elsewhere classified.

### **8273 GRAIN AND SPICE MILLING MACHINE OPERATORS**

Grain and spice milling machine operators operate and monitor machinery used to crush, grind, blend and otherwise process

grain, spices and related foodstuffs for human or animal consumption.

**8273.10 Miller, Foodgrains** processes rice, wheat, pulses, spices and other foodgrains by operating one or more machines or by supervising their operations by other workers. Adjusts and operates machines for removing husk or bran from grains, polishing rice, grinding and crushing grain and spices into smaller pieces or powder, grinding, shifting and screening grains, flour or spices etc.; observes and supervises milling process for desired results, maintains flow of milled product by regulating flow of ingredients in specified proportion; removes obstructions by tapping clogged spouts with mallet and by adjusting gates; examines product periodically by rubbing sample between fingers or comparing it with colour and texture of standard sample; keeps records of materials received and products milled. May supervise other workers at various stages of processing. May be designated according to type of grains milled or processed such as **MILLER, RICE; MILLER, SPICES; MILLER, DAL;** etc

**8273.20 Husker, Machine (Foodgrain); Hullerman, Grain** operates husking machine to separate grain from its outer covering or shell. Starts machine; pours grain into storage bin attached to machine; regulates feeding of grain into machine by manipulating lever: examines hulled grain periodically for proper husking and adjusts machine as necessary; switches off machine after completion of process or when machine does not function properly; removes minor defects and reports major defects to Mistry for rectification. Cleans and oils machine when not in use. May keep production reports, may direct workers in storage of graded grain.

**8273.30 Roller (Foodgrain)** operates rolling machine to crush grain into flour. Adjusts rollers according to fineness of grinding required; starts machine and regulates flow of grain from hopper to grinding rolls; observes crushing process keeping grain moving at regular rate by tapping clogged spouts with mallet (a wooden hammer or one made of rubber or raw hide) and by adjusting gates; examines product periodically by rubbing sample

## NATIONAL CLASSIFICATION OF OCCUPATIONS

between fingers or by comparing texture with those of standard sample; detects working defects if any of machine by sight or sound; removes minor defects and reports major defects to Mistry for rectification. May clean roller machine and also roll flour.

**8273.40 Flour Mill Operator** operates grinding machine or mill to grind wheat, gram or other grains into flour or animal feed. Sets mill by adjusting roller according to fineness of grinding desired; feeds grain into feeding bin of mill by hand; observes process, keeping grain moving at regular rate by tapping clogged spouts with hammer and by adjusting gates; examines crushed product periodically by feel of fingers and adjusts roller as necessary; removes flour collected in bag or container at delivery end; cleans and oils machinery. May weigh grain and flour, calculate charges and collect payment of services rendered to customers. May dress mill stones.

**8273.50 Siever, Machine; Sieving Machine Operator; Sifter, Machine(Food Processing)** tends battery of rotary or oscillating screens to separate and remove bran or other foreign matter from foodgrains, seeds, flour etc., or sort tea, coffee and other foodgrains by size. Fits sieves of desired size into machine frame; dumps product into hopper of machine; places empty container at delivery end of sieve; starts motor to activate screens; opens hopper gate which automatically allows product to pass through different sizes of sieves and removes bran, dust and other foreign matter or sort product into different sizes; checks product passing over different screens to prevent clogging and overflow; removes and replaces defective parts of damaged sieves. May wash grains with water.

**8273.60 Oil Crusher Operator, Power** operates crushing machine for extracting oil from seed such as cotton seed, castor seed, copra and groundnut. Places empty container below crusher; starts machine and feeds oil seeds into hopper of machine; sprinkles prescribed quantity of water over oil seeds to moisten them; turns hand wheel to adjust pressure between rollers and ensures that oil is properly extracted; examines oil cakes visually or by touch to determine that sufficient quantity of oil has been removed;

removes container when filled with oil at delivery end for further processing and replaces it with empty one; take out oil cakes from hopper of crusher and fills hopper with fresh oils seeds to maintain continuous production; cleans and oils machine and keeps work place clean and tidy. May specialise in extraction of oil from, particular type of seed. May operate animal driven indigenous crusher for extracting oil from seeds. May operate filter crushed oil.

**8273.65 Filter Press Operator (Oil)** operates filter presses to filter oil and remove mud and other sediments. Covers filter plates with canvas cloth. Closes press, causing plates to come together forming seal, opens valve to feed press with oil for filtering at required pressure by observing pressure gauge of filter press; ensures that filtered oil is collected at receiving end through taps; inspects filtrate for clarity and draws samples at various stages of filtering process for laboratory analysis; turns off tap or cock if oil runs cloudy through taps; stops pump or valve in case of leak developing in press; cleans filtered impurities and sediments from frames, screens and filters using water, steam, or compressed air; opens filter press, dislodges solid materials from between frames, and replaces filtering media; cleans and washes used filter cloth and dries them in sun before using again. May operate one or more presses. May adjust or repair equipment.

**8273.90 Grain Millers and Related Workers, Other** perform variety of routine tasks at various stages of milling and processing of food-grains and may be designated according to nature of work performed or food grain processed such as-

**Siever Hand(Foodgrains)** sieves grains using mesh or wire-netted sieve to remove dust or foreign matter from grains for further processing.

**Feeder(Food Grains)** feeds wheat, pulses or other foodgrains into hopper of machine for grinding and crushing grains into smaller pieces or powder or for removing husk or bran from grains.

**Helper Miller(Food Grains)** gathers hulled grains in vessel or ground product



## NATIONAL CLASSIFICATION OF OCCUPATIONS

collected in bag or container at delivery end, carries them to storage or issue point.

**Boiling Attendant** removes soaked grain or paddy from water reservoir and fills them in boiling tank after prescribed period and dumps them in open yard for sun drying.

### 8274 BAKED GOODS, CEREAL AND CHOCOLATE PRODUCTS MACHINE OPERATORS

Baked goods, cereal and chocolate products machine operators operate and monitor mixing, blending, shaping and baking machines which produce cereals, bread, pastry, pasta, chocolate and related products from flour, cocoa and other ingredients.

**8274.10 Wafer Baking Machine Operator (Baking)** operates wafer -making machine for moulding dough and baking it into wafers. Fills hopper machine with dough; starts machine and turns set screw to regulate amount of dough deposited in mould; turns thermostat to adjust temperature of moulds; observes colour of baked wafers being ejected into conveyor to detect defects; collects wafer sheets from machine and places them on clean smooth table; joins them properly in rack; may tend machine which also rolls dough into shape of cones prior to baking and be designated CONE BAKER, MACHINE. May arrange cut wafer biscuits in wafer stacking tray systematically.

**8274.20 Cooker Operator; Crystalizer (Confectionery); Pan Attendant (Confectionery)** operates steam heated open pan or vacuum pan to cook glucose, sugar, milk, water and other ingredients into syrup of required consistency for making candies or sweets. Mixes sugar, water, glucose, milk and other ingredients in prescribed proportions according to formula and pours mixture into cooking kettles, turns valves to admit steam and sets pressure gauge and thermostats to cook ingredients at specified temperature; stirs syrup occasionally while it is cooking, tests consistency of syrup with a hydrometer; opens discharge valve and starts pump or tilts cooker or kettle to pour or dump syrups into heaters or onto cooling belts or tables. May beat or knead confection to attain specified consistency as

determined by colour and texture. May be designated according to type of confectionery cooked as **CRYSTAL SYRUP MAKER (Confectionery); COCONUT COOKER (Confection)** or equipment used as **VACUUM- COOKER OPERATOR (Confectionery).**

**8274.30 Cutting Machine Operator (Confectionery); Candy Cutter, Machine** operates machine for cutting candy into pieces or strips of desired shape and size. Cuts slab of candy into sections, using knife; selects cutting dies, mounted on shaft, according to specified width of cut, and installs cutting discs in machine; starts machine; feeds candy to machine through sizing rollers for automatic formation, slicing and cutting into strips and pieces of specified size and shape; weighs random samples to ensure conformity of product with size and weight specifications; dusts candy with flour or starch to prevent sticking; cleans machine and keeps place tidy. May be designated according to candy processed as **CARAMEL CUTTER, MACHINE; MACHINEMAN, LOZENGES; TOFFEE MACHINEMAN.**

**8274.40 Chocolate Maker** operates any of following machines and equipment to relieve regular operators engaged in processing cocoa beans into chocolate liquor and in producing cocoa powder and sweet chocolate, according to formula: Controls roaster that roasts cocoa beans to develop specified color and flavour and reduces moisture content of beans. Tends mill to grind nibs (cracked cocoa beans) into liquid chocolate of specified fineness. Tends hydraulic press to extract cocoa butter from chocolate liquor, and operates cocoa room machinery and equipment to grind and pulverise cocoa cakes into cocoa powder. Mixes ingredients, such as chocolate liquor, sugar, and powdered milk to make sweet chocolate. Operates refining machine to grind chocolate paste to specified consistency. Operates tempering equipment to control temperature of chocolate in cooling process before moulding. May tend moulding machines, pressure cookers, and dryers. May assist in supervising and training production line workers.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8274.50 Flake Miller, Wheat and Oats (Grain Feed Mills)** operates drier, huller, separator, steel cutter, cooker, and flake roller machines to produce wheat and oats flakes, according to specifications: Adjusts slides in chutes and turns valves to regulate flow of grain to machines. Adjusts flow of air to dry grain and feels grain to determine hulling capability. Observes hulling process and adjusts speed of machines that remove and separate hulls from oats. Turns valves to regulate temperature and moisture in cooker, and adjusts tension on flaking-machine rolls, according to hardness and size of grain.

**8274.60 Noodle Press Operator** operates machine to blend ingredients, and knead, extrude, and cut dough used to make noodles: Installs specified die in press, using handtools. Adjusts press rollers to regulate thickness of dough, using micrometer and handtool. Dumps premeasured quantity of eggs into tub, sets meter, and turns spigot to admit prescribed amount of water. Starts beater to mix eggs and water for specified time. Starts pumps to transfer mixture to mixing unit of press. Opens hopper to admit flour into mixing unit and starts press to process mixture. Turns screw to set speed of knives to cut product to specified length. Patrols drying chambers and observes temperature and humidity readings recorded on charts for variation in drying procedure. Reports chart deviations to production manager. Records type of product, date, and time of entry and discharge of product from drying chambers.

**8274.90 Baked Goods, Cereal and Chocolate Products Machine Operators, Other** include workers who operate and monitor mixing, blending, shaping and baking machines which produce cereals, bread, pastry, pasta, chocolate and related products from flour, cocoa and other ingredients not elsewhere classified.

#### **8275 FRUIT, VEGETABLE AND NUT PROCESSING MACHINE OPERATORS**

Fruit, vegetable and nut processing machine operators operate and monitor machines which extract juice from fruit and vegetables or oil from oil-bearing seeds, nuts and fruit, and which process fruit, vegetables and nuts by drying, cooking, canning or freezing.

**8275.10 Peeling Machine Operator (Food Canning & Preserving)** operates and feeds machine to remove skin from fruit and vegetables preparatory to canning and preserving. Checks preliminary washing and cleaning of fruits and vegetables by hand; feeds product into hopper of machine; starts machine; checks at stages peeling process; regulates flow of water inside peeling tank; discharges product through outlet valve on completion of peeling. May be designated according to type of fruit or vegetables peeled such as APPLE PEELER; ONION PEELER.

**8275.20 Pitting Machine Operator (Food Canning & Preserving)** operates and feeds machine to remove pits, seeds or stones from fruits preparatory to canning and preserving. Feeds fruits by hand into hopper of machine; starts machine; observes revolving of drum containing fruits, stoppage of drum when unpitted fruit positions pitting knives, peering of knives in between fruits to remove pits, seeds or stone; examines product periodically to ensure that process is proceeding correctly. Stops machine when process is complete and removes product. May be designated according to product pitted as **CHERRY PITTING MACHINE OPERATOR; APPLE PITTING MACHINE OPERATOR.**

**8275.30 Fruit Press Operator (Food Canning & Preserving)** sets and operates power press for extracting juice from fruits for canning and preserving. Places frame equipped with filter cloth on press cart; pulls lever or turns valve to release fruit from hopper or pipe line onto filter cloth; spreads fruits evenly over filter, folds corners of cloth to cover fruit, and removes forming frame; pushes cart loaded with fruit into press; starts press; pulls cart from press and dumps fruit pulp into container. May start pump to transfer juice to storage tanks. May work on fruit reaming machine or pulping machine and be designated accordingly.

**8275.40 Seaming Machine Operator (Food Canning & Preserving); Can-Sealer Operator** seams tops or bottoms on metal containers to form open-top cans or to close filled cans by feeding and tending automatic double seaming machine. Loads feed hopper

## NATIONAL CLASSIFICATION OF OCCUPATIONS

of machine with tin-can ends (tops or bottoms); starts machine; observes machine operations as can shells or filled cans enter machine in upright position by conveyor and are automatically closed to ascertain that cans and ends are properly joined and seamed together; stops and clears machine when jams occur. May oil and make minor repairs to machine. May make adjustments to mechanism to accommodate various sizes of containers.

**8275.45 Retort Operator; Cooker, Pressure (Food Canning and Preserving)** controls retort chamber (steam pressure cooker) to cook canned foods according to specifications. Pushes trucks or lowers baskets of canned foods into chamber of retort, using hoist; closes retort door or lid to seal chamber; observes dials and thermometers, and turns valves to admit steam to retort and to control temperature, pressure, and cooking time; turns valves to release steam and admit cooling water into chamber to prevent overcooking at end of cooking cycle. May open retort and move basket of canned food for cooling trough, using hoist.

**8275.50 Processing Man (Food Canning & Preserving)** heats containers of canned or preserved foods to sterilise their contents, by means of hot water vats, troughs, or retorts. Fills vats or troughs with hot water; heats water to required temperature by steam or gas; loads material by hand or mechanical hoists; keeps seamed cans for a specified time in hot chest; removes sterilized seamed cans from chest box and cools processed cans in retort, injecting compressed air to counteract pressure within cans. May clean sterilising chambers at regular intervals.

**8275.55 Panman (Food Canning & Preserving); Cooker syrup; Syrupman** tends equipment to mix ingredients that produce syrups used in canned fruits and preserves, flavourings, frozen novelty confections, or non-alcoholic beverages. Determines amounts of ingredients, such as sugar, water, and flavouring, required for specified quantity of syrup of designated specific gravity; opens valve to admit liquid sugar and water into mixer; adds flavouring ingredients and starts mixer to make syrup; opens valve to admit steam into jacket of

mixer to invert sugar, eliminate air, and sterilize syrup; tests syrup for sugar content, using hydrometer; pumps syrup to storage tank. May filter syrup to remove impurities and be designated as **SYRUP FILTERER**. May blend raw syrups and be designated as **SYRUP BLENDER**.

**8275.60 Exhaust Box Operator (Food Canning & Preserving)** removes or expels air from fruit tissues and containers by placing and keeping them immersed in hot water bath or steam chest for specified period. Places filled caps with top open on conveyor belt; starts exhaust box; regulates speed of conveyor to allow cans to pass through steam filled channel for a specified time; admits steam into exhaust box to raise temperature to heat can to expel air from fruit tissues; stops and clears machine when jams occur. May oil and clean machine.

**8275.65 Foodstuff Freezer** freezes fruits, vegetables and other foods before or after packing. Places prepared food or cartons of food on shelves or on moving belt in freezing unit. Regulates temperature and freezing time. May remove frozen food.

**8275.70 Peanut Blancher** tends blanching machine that removes skins from shelled peanuts: Starts machine and pours peanuts into machine hopper. Inspects peanuts as they fall from machine onto moving belt and picks out foreign matter, unblanched peanuts, and peanuts that fail to meet production specifications. May sack blanched peanuts. May tend sorting machine that electronically locates and removes unblanched peanuts.

**8275.72 Dehydrator Tender (Canning & Preservation)** tends sulfur and drying chambers to bleach and dehydrate fruit: Starts conveyors to load trays with fruit, and levels fruit in trays to ensure thorough processing. Pushes loaded cart into sulfurising chamber and lights burner to generate fumes. Moves cart from sulfurising chamber into drying chamber to dehydrate fruit. Observes gauges, and regulates and maintains specified temperature and humidity in drying chambers. Feels and observes fruit during dehydrating process to ascertain firmness and colour in accordance with standards. Pulls cart from heating

## NATIONAL CLASSIFICATION OF OCCUPATIONS

chamber. May record drying time of each load.

**8275.74 Refining Machine Operator (Oils & Grease)** tends machine that refines crude oils, such as soybean, cottonseed, and peanut. Turns valve to pump oil and caustic solution from storage tanks into machine tanks as specified. Starts machine to separate caustic from oil by centrifugal force. Sets thermostat, observes gauges, and regulates valves to maintain prescribed temperature in wash and dryer tanks. Turns valves to pump mixtures to wash and dryer tank to remove byproducts with water, and impurities with heat. Turns valve to pump refined oil to storage tanks. Cleans bowls, using water and steam. May test samples of crude and refined oil to determine specific gravity and free fatty acid content, using hydrometer and refractometer.

### **8276 SUGAR PRODUCTION MACHINE OPERATORS**

Sugar production machine operators operate and monitor machines which process sugar cane and sugar beet and produce refined sugar.

**8276.10 Crusher Operator, Sugarcane; Mill House Foreman; Mill House In charge Fitter; Mill House Head Fitter; Mill House Head Mistry** sets and operates power driven roll pressure to extract juice from sugarcane for making sugar, gur and khandsari sugar. Receives instructions and sets roll pressure according to type of sugarcane to extract maximum possible amount of juice without damaging rollers or machinery; watches cane crushing operations both by sight and sound; directs rate and speed of crushing according to load; mixing of juice from subsequent set of rollers to previous one and bagasse removal. Attends to oiling and cleaning of rollers and major and minor repairs, and conducts overhauling and major repairs during off-season. May be designated as KOHLU OPERATOR, if operates and feeds animal driven sugarcane crusher for extracting juice.

**8276.20 Filter Press Man; Filter Press Operator; Asstt. Press Man; Filter Press Mate; Pressmate (Sugar)** operates filter press to filter mud and other sediments from

sugarcane juice preparatory to further processing for making sugar. Covers filter plates with cloth or canvass and tightens hand screw to close press; dries filter cloth, if necessary, by operating valve and passing steam into press; opens and regulates valve for juice to be pumped into press till specified pressure is indicated on gauge fitted to pump; watches flow of filtered juice into receiving channel, and directs juice to another press, when flow of filtered juice gets clogged. Washes mud on filter cloth by opening hot water valve; opens steam valve to pass steam into filter cloth for drying mud cake; opens press and gets mud scraped off filter cloth, uses filter press cloth washed for re-use, and filter plates and floor cleaned and washed for next filtration. May be designated as ROTARY FILTER OPERATOR, if operates power driven rotary filter having perforated drum to separate mud and other sediments from juice, by admitting muddy juice into tank of machine and rotating drum through which juice is sucked while mud sticks to drum and is subsequently scraped off by knife or blade attached to machine.

**8276.30 Dorr Clarifier Operator; Batch Attendant; Dorr Subsider Attendant; Dorr Clarifier Attendant** operates clarifier which settles mixture of juice, lime and super phosphate heated to determined temperature for clarifying juice. Boils mixture of juice and lime to prescribed temperature in subsider unit; collects samples of juice in test tubes by turning test cocks of overflow pipe, observes them against light to ascertain clarity of juice before letting out to evaporators, or takes samples of juice periodically to check quality of clarification using BTB (Bromo-Thymal Blue) Paper; manipulates valves to let out juice from different compartments of dorr, opens bottom cocks, checks sample and ensures mud level is not above prescribed limit; examines consistency of mud and regulates it draining out from unit. Drains out mud from subsider to mud tank, as necessary, and cleans mud deposited in tank once in each shift; pours heavy oil once every week over surface of juice in subsider to prevent vapour escaping. Ensures efficient working of different compartments and components of unit. May guide Evaporator

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Operator in co-ordinating supply of decanted juice from Dorr into evaporator.

**8276.40 Evaporator Operator, Sugar; Evaporator Attendant** boils sugarcane juice in evaporators to evaporate excess water till syrup of specified consistency is obtained preparatory to further processing in manufacture of sugar. Operates valves to admit juice in evaporator up to prescribed level; starts vacuum pump to create vacuum and admits exhaust steam into evaporator for heating juice to boiling point; watches and regulates temperature, pressure gauges, as necessary; transfers boiling juice from one evaporator to another, by operating valves, to re-boil juice in each evaporator for forming syrup of required consistency; checks frequently samples of syrup drawn from last evaporator, using hydrometer; repeats the process till syrup of required consistency is formed; releases syrup for storage in tank for further processing. Ensures against air leakage in line to prevent disturbance in boiling; keeps record of data relating to working of evaporators. May use live steam if temperature of exhaust steam falls considerably. May attend to more than one evaporator and be designate as **TRIPPLEMAN, QUAD/QUADRUPLE MAN**, etc., according to number of evaporators operated.

**8276.50 Panman, Sugar** operates vacuum pans to further boil syrup received from evaporators till syrup has crystallized to proper point. Creates vacuum in pan by steam ejector; operates intake valve to fill pan to proper level with syrup from evaporators; opens exhaust or live steam valve to let into pan hot steam to boil syrup to required density till it runs into massacuite(thick mixture of crystals and syrup); keeps watch on and regulates temperature; pressure gauge etc. to maintain correct boiling pressure; examines sample periodically, on clean glass slide to check visually against light or to feel by touch to determine if crystals have formed, as desired; takes in further seed i.e., grains of required size, obtained from earlier operation, more water to thin juice or syrup and reboils, if necessary, to make specific type of massacuite; manipulates levers and valves to break the vacuum and shut steam; opens slide valve to drop massacuite into

crystallisers below. May distribute or transfer syrup containing grains to other pans as required for making specific type of massacuite. May clean pan with steam. May be designated as **HEAD PAN MAN, OR PAN INCHARGE**, if engaged on supervision of pan station; or **ASSISTANT PANMAN**, if employed to assist Pan Man.

**8276.60 Crystalliser Man; Crystalliser Operator, Sugar; Crystalliser Attendant; Pan Floor Worker, Crystalliser Mazdoor** tends crystalliser tank to cool boiling massacuites received from pans for developing into sugar crystals. Operates valves and pulls trap doors to allow required quantity of boiling massacuites into crystalliser tank through open sheet metal channels, called gutters; starts stirrers in tank and admits and adjusts flow of cooling water in coils around tank to prevent solidification of massacuite and to ensure its cooling evenly and at controlled rate; stops machine when required state of crystallisation has been obtained; opens trap doors and drains off massacuite from crystalliser for pumping to centrifugal machine after specified cooling; cleans and washes gutters, trap doors etc. with water after delivery of massacuite. May add powdered sugar to massacuite to induce crystallisation.

**8276.65 Centrifugal Man; Centrifugal Operator; Centrifugal Machine Man; Centrifugal Mate** operates centrifugal machine for separating sugar crystals from massacuite. Switches on motor; operates lever to lower delivery channel; admits required quantity of massacuite pumped from crystalliser/workspoor into container of centrifugal machine; closes sliding top covers of centrifuge, allows it to develop speed and spin massacuite at high speed separating syrup or molasses from crystals which adhere to walls of container; sprays water with hose or manipulates valve for automatic spray to wash sugar once or twice during operation for developing massacuite; pulls lever, stops machine and scrapes off sugar from walls of centrifugal container by wooden scraper, manipulating worm and worm shaft; drops scraped off sugar into magma mixer or conveyor according to type of massacuite operated. May manually feed massacuite into centrifugal machine.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8276.70 Magma Man; Magma Mixture Attendant; Magma Operator; Magma Mazdoor** prepares magma (solution) from sugar of masscutes by adding water, syrup and molasses and by mechanically stirring for re-processing. Receives sugar extracted from different masscutes into mixing tank; operates lever and starts its mechanical stirrer; opens valves and adds hot or cold water and sulphurated syrup with sugar in tank, as necessary, for making required type of magma; ensures thorough mixing; operates steam pumps and delivers magma to pan station, sulphitation tank, or seed mixer, as specified, for re-processing.

**8276.71 Cutter Driver; Knife Engine Driver; Engine Driver Knife; Motor Attendant, Knife** operates electrically or steam driven high speed knife engine cutter to size in-coming sugar-cane and to transmit sized sugarcane by elevator to mill house for extracting juice. Switches on motor to operate cutter; signals Cane Carrier Driver to operate cane carrier; watches load on cane carrier to avoid jamming or breaking of cutter blades; stops cutter, when necessary, by operating valves; changes cutter blades and does minor repairs periodically, and during stoppages, if necessary. May attend to lubrication of engine, look after machine, and assist in repair and overhauling of cutter.

**8276.72 Cane Carrier Driver, Mill House; Carrier Driver Sugar** operates power driven mill house cane carrier to feed sugarcane into mill house rollers. Starts mill house cane carrier and regulates its speed by regulator or clutch wheel to prevent extra load and choking; removes jamming of sugar-cane in first rollers; gets speed of crushing mill and cane conveyor regulated to suit ultimate feeding into rollers. May attend to repair and overhauling of cane carriers.

**8276.73 Raw Juice Tank Pump Attendant; Juice Pump Man** regulates flow of juice from mill house to top tank by operating and adjusting valves of juice pipe line. Watches flow of raw juice to top tank and controls flow by opening or closing valves; closes and stops pump valve when top tank gets filled; collects juice samples for laboratory tests; cleans empty raw juice tank periodically; lubricates maceration and mixed juice pumps.

**8276.74 Juice Measuring Man; Raw Juice Measuring Tank Man; Juice Weighing Man; Juice Weighing Attendant** measures or weighs and records weight of, sugarcane juice received from mill house by automatic weighing and recording machine for calculating sugar recovery. Watches automatic filling of juice pumped from fill house into weighing tanks and records readings of automatic recording instruments, tabulates weight of juice from recorded readings, and maintains registers showing number of times tanks filled, indicating data also on black board for ready information; collects samples of mixed juice from every tank for analysis and arranges for addition of supersulphate to mixed juice, if necessary; checks up tare weight frequently; supplies account of juice received to various officers, as scheduled. May operate valves, in absence of automatic arrangement, to fill measuring tanks with raw juice.

**8276.75 Lime Juice Tank Attendant; Milk of Lime Tank Attendant; Lime Attendant** supplies juice by operating valves, from milk of lime tank to juice heater for mixing it further with raw cane juice for boiling. Ensures that milk of lime tank is full; opens valves by hand and watches flow of milk of lime into juice heater; controls pumping rate to prevent overflow of milk of lime tank and to give steady supply of milk of lime into juice heater; opens valve to fill juice heater with raw cane juice from top tank; watches level of mixed juice in juice heater and closes inlet valve when prescribed level is attained. May add prescribed quantity of milk of lime and sulphur dioxide to raw cane juice.

**8276.76 Juice Heater Man; Juice Heater Attendant** heats raw juice by steam to required temperature in tubular or cylindrical juice heaters for further processing. Receives juice into tubes or cylinders of juice heater by opening or directing opening of inlet valve; heats juice to required degree of temperature by opening steam valve and letting in exhaust steam inside heater; maintains constant pressure by regulating pressure gauge and steam valve. Prevents inter-mixing of raw juice and sulphitated juice and leakage of juice into condensers by guarding against leakage from cover, walls and tubes of juice heaters; informs shift

## NATIONAL CLASSIFICATION OF OCCUPATIONS

Chemist in case of leakage or other defect. Gets tubes, cylinders and other parts of heaters cleaned by Juice Heater Helper. May use live steam if temperature of exhaust steam falls below prescribed limits. May direct removal of hot juice in buckets in case of pump failure. May conduct periodical repair and over-hauling of heaters.

**8276.77 Juice Heater Helper; Juice Heater Cleaner** cleans juice heaters and assists juice Heater man in operating heaters for heating juice in sugar manufacture. Opens and adjusts valves as directed by Juice Heater Man and admits raw juice, into tubes or cylinders of juice heater; assists in maintaining constant specified steam pressure during heating; lifts heater top cover, removes left-over juice and cleans periodically tubes, cylinders and other parts of heaters, using portable power driven or hand brush, cleaning rod, water, etc. Gets the juice heater emptied by carrying hot juice in buckets in case of leakage of tubes or breakdown of heater. May assist in letting in live steam in juice heater and in repair and overhaul of heaters.

**8276.78 Carbonation Man; Carbonation Mate; First Carbonation Man; Lining Man** tends carbonation tanks to purify sugarcane juice by mixing heated juice with milk of lime and carbon dioxide with a view to precipitating mud and impurities from it. Admits heated juice in first carbonation tank up to overflow-pipe level; admits and controls flow of prescribed quantity of milk of lime into juice; lets in continuous flow of carbon dioxide and allows ingredients to mix thoroughly; tests solution with testing paper to determine sufficiency of ingredients; makes adjustments to ensure correct composition of mixture, if necessary; discharges the carbonated juice into storage tank for onward pumping to filter press. May get pipe line, tank and other equipment repaired or overhauled. May be designated as SECOND CARBONATION MAN, if engaged on passing and adjusting flow of carbon dioxide into juice flowing into second carbonation tank after first filtration, testing solution with testing paper, and allowing juice to flow off for second heating.

**8276.79 Carbonation Storage Tank Attendant; Carbonation Juice Pump**

**Attendant** tends carbonated storage tank and arranges pumping of carbonated juice to filter press. Ensures filling of carbonated juice in main storage tank and filling of bottom tank from it, by operating tap or valve and watching overflow pipe, opens pump line valve to pump off juice to filter press at desired speed; cleans tank strainer frequently to maintain easy flow of juice in pumping. May regulate flow of juice in bottom tank and operate pump, if necessary. May be designated as **FIRST/SECOND CARBONATION STORAGE TANK ATTENDANT** if engaged on first or second carbonation tank.

**8276.80 Sulphitation Man, Sugar; Sulphitation Tank Attendant; Sulphitation Tank Mate** tends sulphitation tank for passing sulphur dioxide into filtered juice to further clarify and bleach it before further processing. Operates valve to let in juice, after filtration, into sulphitation tank up to prescribed level; tests specific gravity, if required, with hydrometer; manipulates valves to admit required quantity of milk of lime and sulphur dioxide into tank and allows it to be mixed with juice, takes out samples of mixed juice frequently and tests it with indicator (BTB) paper to determine sufficiency of lime and sulphur, adding needed ingredients, where necessary. Conducts second sulphitation, in similar manner, by taking in syrup, instead of juice, coming in from evaporators, by passing sulphur dioxide to clarify it and by taking out samples in test tubes to test with BTB paper. Opens delivery valve to pump out sulphurated juice or syrup to storage tank or clarifier through juice heater. Conducts periodical cleaning and checking of tank equipment and pipe line to maintain it in proper working condition. May be designated as **SULPHITATION MAN, (JUICE)** if engaged on (first) sulphitation of juice; or **SULPHITATION MAN, SYRUP**, if engaged on (second) sulphitation of syrup.

**8276.81 Eliminator Attendant, Sugar; Eliminator Mate** boils sulphurized juice or syrup received after sulphitation to remove certain impurities. Opens valve to let in juice or syrup into tank up to prescribed level; opens steam valve to heat coils and boil juice or syrup by maintaining temperature of juice or syrup at specified

## NATIONAL CLASSIFICATION OF OCCUPATIONS

level; checks periodically temperature of juice/syrup with thermometer; closes steam valve after boiling for prescribed period; operates valve to discharge boiled juice or syrup into settling tanks; opens bottom valve of tank to drain off sediments to another tank; takes samples of clean juice/syrup in test tubes to check it for desired clarity May be designated as **SULPHURATED SYRUP TANK ATTENDANT OR SYRUP HEATER ATTENDANT** if engaged on boiling and clarifying syrup.

**8276.82 Settling Tank Man (Sugar); Settling Tank Attendant; Clarifier Attendant, Sugar** attends to settling tanks to separate sugar cane juice/syrup from mud and other sediments. Receives juice/syrup from eliminators into settling tank and allows it to remain in tank for specified period to let mud and other sediments settle down at bottom; opens valve to allow clear juice/syrup to flow out for further processing, lets out muddy juice/syrup for further filtering. Cleans and washes tanks assisted by operatives.

**8276.83 Works Poor Attendant** tends works poor machine to cool massacuite to required temperature before being pumped to respective centrifugal machine for separating sugar crystals. Opens valve from crystalliser and allows massacuite to flow into works poor machine up to prescribed level; presses hand lever to start stirrers in machine; checks and ensures running of cold water through tubes inside machine; prevents solidification of massacuite by diluting with water, if necessary; regulates flow of massacuite from works poor into pump feeding centrifugal machine.

**8276.85 Gur Maker** makes 'gur' from juice of sugarcane, palm, etc. Sieves raw sugarcane or palm juice to clean impurities; boils raw juice to required temperature in open pan over fire or using suitable heating device, taking out scum from top of boiling juice from time to time; frequently sprinkles water on boiling juice to avoid overflowing and for maintaining proper temperature; evaporates excess water till syrup of desired viscosity is obtained; adds milk of lime or other cleaning agent, as necessary, to clarify boiled syrup; strains syrup and allows it to settle to remove sediments, mud and

impurities; transfers concentrated syrup from pan into wooden vats; allows it to cool and harden into gur. May clean pans, vats, work area.

**8276.90 Khandsari, Sugar and Gur Making Operatives** perform variety of low-skilled and routine tasks at various stages of refining sugar or making gur, such as milling or crushing of sugarcane for extracting juice, heating juice, treating juice with sulphur dioxide or carbon dioxide to purify it, filtering juice to remove mud and sediments, boiling juice to obtain massacuite, separating crystals from molasses, and may be designated according to nature of work performed or department in which worked, such as:

**Carbonation Lime Tank Khalasi; Carbonation Helper or Attendant** if operates and adjusts valve of carbonation tank to admit milk of lime into it.

**Filter Helper or Mazdoor** if helps Filter Press Man in setting filter press for operation; scraping off mud from filter plate and cloth, washing and cleaning filter plates and cloth.

**Sulphitation Khalasi/Helper/Mazdoor** if assists Sulphitation Man in operating valves, testing sulphitation samples, cleaning pipes and tank and operating delivery pump.

**Sulphur Oven Helper** if assists in operating and cleaning sulphur ovens.

**Palledar; Hamal** if engaged in grading, handling, removal, loading and stocking of sugar bags.

**Juice Recorder** if attends to weighing and recording of weighments or temperature of juice.

**Juice Heater Helper** if assists in operating and cleaning of juice heater; and such other operatives, as **Eliminator Khalasi; Pan Khalasi; Hopper Man; Dorr Man; Maseration Man; Khus Khus Khalasi; Mud Tank Attendant; Syrup Storage Tank Khalasi; Bagasse Bale Pressing Machine Operator; Spray Pond & Channel Worker; Centrifugal Mate; Centrifugal Khalasi; Mixed Juice Pump Driver; Bagasse Engine Driver, etc.**



## NATIONAL CLASSIFICATION OF OCCUPATIONS

### 8277 TEA, COFFEE AND COCOA PROCESSING MACHINE OPERATORS

Tea, coffee and cocoa processing machine operators operate and monitor machines to blend and prepare tea leaves, coffee or cocoa beans and chicory roots.

**8277.10 Tea Maker** controls various processes in tea factory to treat and prepare green tea leaves fit for brewing and final preparation of green or black tea. Checks that green tea leaves are withered in lofts, by Withering Loft Attendant and have proper moisture content, before rolling; ensures that withered leaves are properly rolled by Roller Attendant; arranges for fermenting of rolled leaves and examines them by touch, sight and smell for proper fermentation before firing or drying; checks that fermented leaves are dried at required temperature by Firing Machine Attendant and processed tea leaves are properly sorted and graded by Tea Factory Operatives; examines sample infusion of different grades of tea and tastes to decide if colour, flavour and aroma are according to desired standards.

**8277.15 Withering Loft Attendant(Tea)** tends lofts on which green tea leaves are withered and supplies withered leaves to rolling machine. Spreads green leaves thinly with hands or stick on layers of gunny or hessian cloth in withering lofts; allows leaves to wither for required time, according to their moisture contents and weather conditions; checks leaves in different lofts for proper withering, judging by touch or sight; collects withered leaves from lifts by hand and pushes required quantity through opening on floor to feed rolling machine below on receipt of signals from Roller Attendant. May tend Rolling and Firing Machine.

**8277.20 Roller Attendant; Rolling Machine Attendant(Tea)** feeds and tends rolling machine to roll withered tea leaves. Signals Withering Loft Attendant to supply withered leaves for rolling; charges roller drum with required quantity of withered leaves by hand or basket; starts machine pushing lever to roll withered leaves for specified time; adjusts pressure of machine as required by manipulating lever; stops machine when leaves have been rolled and

opens trap door to release them into container placed below. May feed and tend roll breaking machine to sieve rolled leaves.

**8277.25 Pulp Houseman(Coffee); Pulping Machine Attendant** operates pulping machine which cuts and removes fleshy pulp from ripe coffee berries. Feeds or dumps into hopper of machine with ripe coffee berries manually; opens valves to let water flow into machine; regulates flow of berries into machine by adjusting hopper door opening to let them drop steadily over running water; starts machine; observes operation of cutting and removing of flesh from berries; allows pulped berries to flow into tank which drains water and retains berries; removes pulp from machine to dump- yard; refills tank with water up to required level and rakes beans in water using wooden ladle to clean remaining fleshy skin from beans; drains out water and removes cleaned coffee beans and spreads them in open yard for drying; keeps pulp house clean and tidy. May attend to running repairs to machine.

**8277.30 Peeling Machine Attendant (Coffee); Huller Man (Coffee); Machine Room Worker (Coffee)** tends huller to remove husk from pulped coffee beans. Starts machine; feeds required quantity of beans into hopper of machine; adjusts gate in spout to regulate flow of beans into reel; observes milling process, inspects beans and adjusts rollers to prevent damage to beans and proper dehusking of beans. Performs related duties such as lubricating equipment and repairing machinery. May keep production report. May direct workers in storage of graded coffee beans .

**8277.35 Firing Machine Attendant ; Drier (Tea)** tends firing or drying machine to dry rolled and fermented tea leaves, spreads rolled and fermented leaves evenly on tray beds of firing or drying machine; manipulates valves to control flow of hot air for maintaining proper temperature in drying chamber ; checks by touch, smell and sight whether leaves have been properly dried ; manipulates levers to drop dried leaves on floor or containers placed below ; sends samples of cured tea leaves to Tea Maker for testing .

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8277.40 Tea Blender** operates machine which mixes various grades of tea. Opens boxes of tea and weighs out specific quantities of each sort. Scoops or shovels weighed out quantities into machine and starts it. Ensures that tea is blended properly and decides when blending is finished. May deliver mixture to packing machine.

**8277.45 Coffee Blender** operates machine to mix various grades of green coffee. Empties bags of various grade of coffee, as specified in formula, into bin of machine. Starts blending mechanism, which mixes coffee. Ensures that coffee is blended properly and decides when blending is finished. Manipulates levers to dump blended coffee into elevators to get it conveyed to clearing bins or to other processing units prior to roasting.

**8277.50 Coffee Roaster; Coffee-roasting Machine Operator** tends oven that roast green coffee beans. Weighs batch of coffee beans in scale-hopper, and opens chute to allow beans to flow into roasting oven; observes and adjusts controls to maintain required temperature; roasts coffee for specified time or estimates roasting time by comparing colour of beans from oven with standard sample; opens discharge gate to dump roasted beans to cool them. Stores roasted beans in airtight containers for powdering. May tend machine that grinds coffee.

**8277.60 Roaster, Cocoa Bean** roasts cocoa beans in heated revolving cylinders. Loads cylinders with cocoa beans and starts it. Observes roasting process and adjusts heating mechanism as necessary. Tests beans during roasting process by tasting, smelling and feeling and decides when roasting is finished. Discharges roasted beans into cooling receptacle. May operate machine in which beans are crushed and husks and chaff are separated.

**8277.90 Tea, Coffee and Cocoa Preparers, other** perform variety of routine tasks, not elsewhere classified, in processing tea leaves, cocoa beans and coffee berries to make tea, cocoa or coffee and may be designated according to nature of work performed such as

**Tea Cutting Machine Attendant** feeds tealeaves to cutting, tearing and curling machine.

**Roll Breaking Machine Attendant** tends and feeds rolled tealeaves into roll breaking machine which sieves tea dust from rolled leaves.

**Fermenting Room Attendant (Tea)** ferments cuts or rolled tea leaves by spreading them on zinc sheet beds and rolling them occasionally for aeration i.e. to expose to chemical action of air.

**Balance Sifter Attendant** tends balance sifter to extract balls (undried lumps of tea) from dried tea for further drying in machine. **Curer; Drier (Coffee)** dries coffee beans in sun to obtain proper curing.

**Grabler** separates malformed, discoloured and damaged coffee beans or seeds by hand.

### 8278 BREWERS, WINE AND OTHER BEVERAGE MACHINE OPERATORS

Brewers, wine and other beverage machine operators operate and monitor machines which mix, press, or malt and ferment grains and fruit to make malt liquors, wine and other alcoholic or non-alcoholic beverages, except fruit and vegetable juices.

**8278.10 Brew Master** supervises all production activities in making beer and other malt liquor from grain. Observes and supervises operations, such as receiving, cleaning and steeping (soaking in water) of grain; germination of grain; drying of germinated grain; making of mash and extraction of wort; fermentation of wort and other processes in manufacture of malt liquors, e.g., filtration, bottling, storing of liquors. Gives specific instructions on handling of each batch; tastes liquor, giving directions as to alteration of malt content and other composition changes, as necessary; and ensures quality and quantity of production. May place order for purchase of, or himself purchase, raw materials. May control stocks of barley, malt and different qualities of beer brewed and bottled. May direct repairs and alterations.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8278.12 Malt Maker; Germination Maker; Malt House Jamadar** makes malt from barley or other grain closely supervising different processes in manufacture. Weighs and dumps grain or barley into steeping (soaking) tank by operating valve to increase or decrease supply of steam; allows it to soak for specified time, stirring it with long pole; spreads soaked grain on floor and turns it over with wooden hand plough or shovel to aerate it and cool it, sprinkling water on it, as necessary; or loads soaked grain into drums, compartments, or kilns, and lets in and controls hot air current, temperature, water sprinkling, and rotation of drum, or operation of agitators for drying sprouted grain; supervises its unloading from kiln. May keep record of temperature maintained and time taken.

**8278.14 Masher; Cooker, Mash; Brew House Jamadar** cooks malt with water to prepare mash and malt extract (called wort) for making distilled or malt liquors. Fills tubs, pans or cookers equipped with mechanical agitators to specified level with water and heats by steam to prescribed temperature; weighs out prescribed quantity of malt and puts it into heated water; cooks mixture while it is mechanically agitated for specified time at prescribed temperature, converting it into malt extract known as wort; transfers mixture into filtering tank using strainer for separating pulp from liquid; and pumps mash to tank, preparatory to fermenting. May cool mash preparatory to distilling, by pumping it into cooling vat equipped with coils through which cold water circulates.

**8278.16 Fermentation Man; Fermenting Room Man; Fermentation Jamadar** controls fermentation process in making distilled or malt liquors or wine. Removes steam by compressed air from fermentation tanks and cools them to specified temperature by admitting cold water to pipe lines; pumps wort (liquid separated from solid part of cooked mash) or mash into fermentation tank and simultaneously admits yeast from another pipe for mixing with wort or mash; maintains solution at specified temperature during fermentation process by observing thermometer and regulating valves of steam heating coils; makes periodic tests

of specific gravity with hydrometer; adds yeast, sugar or water, as necessary; accelerates chemical reaction by admitting air through a valve; periodically removes froth formed at top of fermenting beer; removes yeast by suction or other means, and pumps fermented solution to cistern or other settling vessel; flushes tanks and pipes with cold water, sterilizes them closes drain, and refills them, with live steam.

**8278.18 Yeast Maker** produces yeast required in fermentation of mash used in production of distilled and malt liquors. Weighs out prescribed quantity of barley, rye or other grain meal; dumps it into measured quantity of water heated to specific temperature in special wooden vat; mixes grain and water, using agitator; cooks mixture by admitting steam into coils, in vat; cools mash by running cold water through cooling coils in vat; pours prepared yeast solution or culture into mixture and stirs with agitator; regulates temperature of fermenting mash by running hot or cold water through coils in vat; ascertains specific gravity and acid content of mash by using hydrometer and performing simple chemical tests; separates yeast from liquor by means of centrifugal separator or filter press. May draw off yeast from fermentation tanks by suction pump or by skimming.

**8278.20 Malt Vinegar Maker** supervises all process concerned with manufacture of malt vinegar. Observes operations, such as receiving and cleaning of grain; steeping of grain in tanks filled with water; spreading of steeped grain on floor; grinding of grain; making and fermenting of mash; clarifying of fermented vinegar by filtering. Gives directions concerning temperature, rate of flow of materials and quantity of materials needed. Tastes vinegar and gives instructions as to alterations in composition of contents. May buy raw materials.

**8278.25 Filterman; Filtration Jamadar** controls filtration plant to filter beer to remove sediments and impurities. Attaches pulp filter pads in filter machine; opens valve to pass beer through it; maintains correct pressure of liquor by adjusting gauges, valve; removes filter, cakes and pads and cleans in hot water for re-use; flushes

## NATIONAL CLASSIFICATION OF OCCUPATIONS

equipment with hot water and sterilizes with steam.

**8278.30 Pasteuriser, Brewery** pasteurises beer bottles and sorts out defective ones. Opens water inlet cock in pasteurisation tank containing beer bottles to fill water few inches above crowns of bottles; opens steam valves to heat water to specified temperature; checks water temperature periodically with thermometer, operating steam valve to ensure constant temperature; removes bottles showing leakage of gas due to defective crowning; opens cold water spray pipes to cool down bottles after required period; drains out water by opening outlet cock of tank after bottles have cooled down. Records pasteurisation time of each tank.

**8278.35 Syrup Plant Operator** prepares sugar syrup by dissolving requisite quantity of sugar in known volume of water in steam heated pan and pumps it through filter press and chiller for filtration, cooling and onward transmission to mixing chamber. Sets volume, meter, fitted to steam heated closed pan or vessel, and opens valve to admit known volume of water in heating chamber; opens valve to let in steam into coils of heating pan; switches on stirrer; and weighs and adds required quantity of sugar to heated water. Continues heating and records temperature of sugar solution from time to time by manually dipping thermometer in it; ensures by sight that heating pan is full to specified level to form homogenous solution; changes filter papers, if necessary and sets filter press and chiller; heats sugar solution up to prescribed temperature. Opens discharge valve of heating pan and switches on pump to force syrup (sugar solution) through filter press and chiller for onward transmission to syrup mixing chamber. Ensures proper filtration and cooling by getting samples tested, as necessary. May wash and clean heating pan, filter-press, chiller and pipe lines after preparation of each batch of syrup by passing hot water through whole system. May set steam pressure of heating chamber when necessary. May guide Syrup Mixing Plant Operator.

**8278.40 Syrup Maker** prepares syrups of different flavours for making sweet aerated drinks by mixing and boiling ingredients. Weighs or measures sugar or saccharine and

mixes specified quantity of water; boils solution in kettle or pan to desired consistency, removing scum from top of syrup; allows syrup to cool down; filters and pours it into different pitches, or conveys syrup by means of plastic-hose to syrup room; adds and mixes requisite quantity of essences, fruit juices or other ingredients for making flavoured syrup, such as lemon, ginger, orange, rose etc. May make flavoured syrup for "sherbet" and be designated as **SHERBET MAKER**. May fill bottles with specified quantity of syrup. May wash and clean utensils, vessels etc. after making syrup.

**8278.45 Syrup Mixing Plant Operator** operates syrup mixing plant for making cold drinks and aerated water. Opens valve to admit syrup upto prescribed level in mixing chamber; switches on mixing chamber agitator for adding essence, colour etc. to syrup; continues mixing for specified time and gets samples tested, if necessary; opens valves and switches on pump to admit cold water into cooler and to transfer solution from mixing chamber to bottling plant through coolers; prepares solution of weighed quantity of soda-bi-carb with water, filters and mixes it with treated water in mixing chamber, and pumps it direct to bottling plant for making soda water. May wash mixing chambers with hot water after preparation of each batch of solution. May keep record of quantity of solution prepared. May keep shop floor clean and assist in periodical repairs. May mix essence, dye, etc. himself in mixing chamber.

**8278.47 Syrupe; Syrup Mixer, Aerated Water** fills bottles with specified quantity of syrup for making sweet aerated drinks. Receives empty washed bottles, checks if properly cleaned; pushes neck of bottle to nozzle connected with syrup tank; opens valve and drains required quantity of syrup in bottles. Passes on filled bottles to Filler for making sweet aerated drinks. May fill bottles manually from pan, vessel, pitchers containing syrup, using measures. May cook and prepare different flavours of syrup.

**8278.50 Bottling Plant In charge; Bottling Plant Machinist; Bottling Plant Mistry/Operator** sets, adjusts and operates washing, filling, bottling, mixing, crowning

## NATIONAL CLASSIFICATION OF OCCUPATIONS

and other machines in aerated water factory or brewery. Ensures automatic and thorough washing of bottles; disconnects supply line and trial runs various machines for testing proper filling, making necessary adjustments in machines, if warranted by trial run; connects supply line for feeding purified water (in aerated water plant) or beer (in beer bottling); starts machine by operating lever, regulating air pressure to ensure uniform filling of bottles. Sets and operates various other machines, adjusting levers, gears, gauges, pressure and temperature controls for proper mixing, crowning and sorting of bottles. Coordinates and guides workers to maintain stipulated production, remove defects and minimise wastages; repairs, maintains and overhauls machinery and equipment. May attend to water treatment plant for purifying water. May set carbon dioxide gas purifier, carbonator plant, bottling plant and related equipment, if engaged in aerated water factory.

**8278.55 Bottle Washer, Machine; Washing Machine Operator** operates bottle washing machine for washing empty used or dirty bottles. Arranges for collection of empty used bottles from go-down to washing machine; adds prescribed quantity of chemical to water in washing tanks, changing cleaning brushes, if required; opens and regulates steam valve to heat up tank water upto prescribed temperature; guides and watches operations to ensure good condition of brushes used, adequate pressure of spray and proper scrubbing and cleaning of bottles. May check bottles at delivery end of machine and remove damaged, defective or unclean bottles. May pull out stuck-up bottles by lifting stopper weights.

**8278.60 Carbonator Machine Attendant** operates carbon dioxide gas purifier cylinders and carbonator plant for passing specified volume of gas to bottle filling plant. Connects carbon dioxide cylinder with pipeline of purifying cylinders, containing potassium permanganate water, activated carbon or any other suitable material, and adjusts valve of carbonator plant; opens valve of carbon dioxide cylinder with spanner and allows gas (carbon dioxide) to pass through purifying cylinders, carbonator plant and thence to filling machine; watches pressure gauge reading

and adjusts gas valve or replaces cylinder to regulate flow of gas; sprays hot water on carbon-dioxide cylinder to vapourise liquid carbon dioxide in cylinder, if any. May feed crowns in crowning machine hopper. May act as Bottling Plant Incharge.

**8278.65 Filler, Aerated Water; Filling Machine Operator, Aerated Water** operates automatic filling, mixing and crowning machines to fill bottles with syrup and carbonated water, fix crowns on them and mix contents. Feeds crowns in crowning machine hopper, and syrup and carbonated water in filling machine; switches on syrup and bottle filling machines, opens conveyor gate trap to allow bottles to pass first to syrup filling and then to carbonated water filling machine, preventing jamming of bottles by controlling conveyor gate trap, as necessary; switches on crowning and mixing machines and chain conveyor for crowning filled bottles and mixing their contents, tapping crowning machine hopper with mallet, if crowns get stuck up. Watches operations and readings of gas and oil pressure. Water temperature and speedometer; removes stuck-up and defective bottles; and feeds crowning machine hopper, as necessary. May be designated as **CROWNING MACHINE OPERATOR**, if engaged on particular type of machine.

**8278.70 Filler, Aerated Water, Hand Machine** operates manually controlled filling machine to fill carbonated water in bottles. Fills crown or marble stoppered bottles with prescribed quantity of purified water; opens lid of machine and places filled bottles in single or multi-chambers of filling machine; closes lid, opens valve to let in carbon dioxide gas from cylinders into filled bottles at particular pressure; rotates machine by hand, giving specified number of rotations to machine to obtain correct carbonation; checks up carbonation by opening lid, whenever necessary; removes carbonated water bottles from machine and hands over for crowning (sealing). May attend to repair and maintenance of machine. May be designated according to make of machine handled **-CLUB MACHINE FILLER**; if operates club machine for filling only carbondioxide gas in bottles,

## NATIONAL CLASSIFICATION OF OCCUPATIONS

purified water having been filled in bottles separately.

**8278.90 Brewers, Aerated Water and Beverage Making Operatives** perform variety of low skilled and routine tasks in making aerated drinks, sherbats and other soft drinks; and in brewing beer or other malt liquors and may be designated according to nature of work performed.

**Crowner**, if working on automatic or semiautomatic machine to crown filled bottles.

**Washer Attendant**, if engaged on checking filled, defective or damaged bottles at the delivery end of washing machine.

**Sighter**, if engaged on checking bottles visually for cleanliness against light as they pass on conveyor, and to check proper mixing, crowning etc.

**Washing Plant Loader**, if engaged on feeding empty used bottles in washing machine.

**Kilnman, Malt**, if engaged on drying germinated grain, by loading of grain into kiln, firing furnace, regulating temperature and air supply.

### 8279 TOBACCO PRODUCTION MACHINE OPERATORS

Tobacco production machine operators operate and monitor machines which process tobacco and make cigarettes and other tobacco products.

**8279.10 Supervisor and Foreman, Tobacco Preparation, Cigar and Cigarette Making** supervises and guides workers engaged in tobacco preparation, cigar and cigarette making and ensures quality and proper manufacture according to brand produced. Guides workers in various tobacco preparation, cigar and cigarette making operations, such as curing, grading, blending, conditioning, drying, stretching, rolling, slitting and other manual and mechanical processes and ensures proper quality according to brand produced. Arranges for materials and ensures upkeep of machines and equipment and proper

utilization of men, materials and machines supervised. Maintains necessary records and registers, submits prescribed reports and returns and enforces excise and other rules and regulations. May test samples while processing. May be designated according to section or work supervised.

**8278.20 Supervisor and Foreman, Tobacco Products Making** supervises and guides workers engaged in making snuff, zarda, kimam and other tobacco products and ensures quality of products manufactured. Guides workers in cutting tobacco leaves, drying, roasting, grinding, dyeing, pounding and other operations according to nature of work and ensures quality of product manufactured. Arranges for materials and ensures proper utilization of men and equipment supervised. Trains new entrants and maintains prescribed records and registers. May specialise in manufacture of any particular type of tobacco product. May be designated according to section or work supervised.

**8278.30 Drier and Cooler Operator, Tobacco** operates drying and cooling machine to dry and cool processed and shredded tobacco by subjecting to hot and then to cool air. Starts driers (rotating drums) and turns valves to admit steam to heat coils of driers, or opens valves of gas burners and sets thermostat; periodically feels tobacco to determine dryness and regulates heat to dry tobacco within specified limits. Starts blower and regulates flow of air in cooling drum to cool shredded tobacco coming from drier. May feed tobacco to machine.

**8279.40 Cutting Machine Operator, Tobacco; Shredding Machine Operator, Tobacco** tends machine that cuts tobacco into shreds for use in making cigarettes. Sets cutting knife and adjusts machine; fills hopper of cutting machine with leaves; starts machine, causing feed rolls to revolve and knife to reciprocate; watches cutting process to ensure that machine is shredding tobacco correctly; makes minor adjustments to machine, such as tightening bolts that hold knives in place and adjusting rollers; checks cut tobacco by feeling it with fingers to ensure moisture content; draws cut tobacco from knife by hand to platform; removes/

## NATIONAL CLASSIFICATION OF OCCUPATIONS

rejects such as stems, uncut leaves, and other foreign matter and pushes rest of cut tobacco to conveyor; replaces dulled knives with sharpened ones when necessary. May clean and oil machine.

**8279.50 Cigarette Making Machine Operator** tends automatic machine to make cigarettes. Places roll of cigarette paper on spindle; sets monogram printing device to print brand name on paper at specified position; regulates flow of shredded tobacco to insure that cigarette contains specified amount of tobacco; fills ink and glue reservoir; threads cigarette paper between guide rolls and adjust friction tension on holding spindles using wrench; starts machine and observes operation to ensure that shredded tobacco is automatically drawn and wrapped in cigarette paper, forming a continuous tube, and that tube of wrapped tobacco is cut at correct intervals into cigarettes; when making filter, cork-tipped cigarettes, places coil of tipping material on spindle and fills hopper with filters; replaces full cigarette catching trays with empty ones; reports malfunction to superiors; cleans paper scraps and waste materials from machine. May be designated according to type of cigarettes as **FILTER-CIGARETTE MAKING OPERATOR**.

**8279.60 Stingy Cigarette Slitting Machine Operator; Defective Cigarette Slitter** tends machine that cuts paper from defective cigarettes to reclaim tobacco. Attaches hoisting bar to tub of cigarettes; starts machine and pulls rope to hoist tub and dump cigarettes into hopper that feeds cigarettes under cutting knives and on to separator (Vibrating Screen) that separates paper from tobacco. May attend to minor repairs to machine.

**8279.90 Tobacco Prepares and Tobacco Product Makers, Other** workers engaged in making chewing and other types of smoking tobacco and tobacco products not elsewhere classified.

### 828 ASSEMBLERS

Assemblers assemble components in to products according to strictly laid down procedures. The products worked on may be

moved from one worker to the next along assembly line.

### 8281 MECHANICAL MACHINERY ASSEMBLERS

Mechanical machinery assemblers assemble the components or parts of mechanical machinery, according to strictly laid down procedures.

**8281.10 Assembler, Workshop Machines and Equipment** assembles finished mechanical components to form specific unit or machine such as lathe, grinder, milling machine, pump etc. using hand tools and machines. Studies drawing or sketch for fitting and assembly details. Places different finished metal components of machines like frames, cross members, bearings, bottom and top plates, etc. on floor and assembles them together in prescribed sequence, using nuts, bolts etc. Carries out further tooling, if necessary while assembling. Fits different parts together to form complete unit or part of unit. Checks during assembly stages for accuracy of fitting and to correspond to specifications. Finishes fitting and files off edges or ends of parts where necessary using hand files, chisels etc. Tests either finished main assembly or sub assembly parts for specified performance and makes necessary adjustment to parts using hand tools. May install assembled units at site or in factories for actual running. May repair and overhaul machines.

**8281.15 Assembler, Printing Machinery** assembles and fits parts of printing machinery according to maker's specifications and erection manual. Studies drawings and other specifications and consults erection manual. Examines foundation as per drawing for correct assembly and erection and gets alterations done, if necessary. Makes arrangements for proper cleaning of different parts of machine and checks them for flaws and accuracy of fit, using gauges, micrometers and other measuring instruments. Assembles parts step by step according to instructions, if necessary by further tooling using power and hand tools and checks for rigidity, proper fit and required functions. Synchronises movements of corresponding parts and adjusts them to ensure stipulated

## NATIONAL CLASSIFICATION OF OCCUPATIONS

performance. Tests assembled unit for operational efficiency and makes adjustments where necessary. May drill holes, mark metal and perform other fitting operations, if necessary. May set necessary devices in assembled unit to suit customer's needs.

**8281.20 Assembler, Textile Machinery** assembles textile machines from finished components as member of team. Studies drawings and collects details of assembly to be made. Collects or gathers frame, structure parts, sub assemblies etc. from stores or nearby fixed points. Erects side frames and fits cross frames and other joints. Assembles various other machine parts of components to main frame, if necessary by further tooling, using nuts, bolts, rivets, etc. in order of sequence. Ensures that stage assembly is accurate and conforms to prescribed standards. Fits up assembly parts like gear wheels, bottom rails, shaft assembly etc. as detailed. Fastens or secures various parts and components like slide arm fitting, levers, slides, cams, springs, chain pulleys, brackets etc. to position using screws, nuts, bolts, rivets and other devices. Ensures that parts assembled are set to proper level. Finishes or smoothens surfaces by scraping, filing, chiselling or even welding. Makes punch marks or marks symbols on different assembled parts for assembly of machine at site of factory. Tests performance of assembled machine by manipulating levers, gears, etc. to ensure accurate and prescribed performance. Dismantles assembled machine for packing according to markings. May erect machine at premises or factory. May overhaul and repair textile machinery. May give electrical or power supply to machine. May work on sub assembly line and assemble sub units or parts on work bench.

**8281.25 Assembler, Refrigerator and Air-Conditioning Unit** assembles and installs refrigerator and air-conditioning units by connecting pipes, insulating, lagging, connecting compressor, etc. and ensures attainment of desired temperature. Assembles frame or body of refrigeration or air-conditioning equipment by tightening respective parts with nuts, bolts, rivets, hinges, etc. Insulates frame and tank with insulating material such as glass wool, cork,

etc. fabricates evaporator coils to required size and shape depending on type and nature of air-conditioning unit handled. Fits various controls and accessories like expansion valve and refrigerant controls as detailed. Connects copper or iron pipes to different units of segments and charges refrigerator with gas or liquid as freezing medium. Ensures conformity with specifications and prescribed performance of assembled unit. Installs assembled unit at premises and gives power connection to unit by fitting necessary gadgets and adjusting various controls to suit required freezing or cooling temperature. May repair and overhaul air-conditioning and refrigerator equipments. May install commercial air-conditioning equipment to premises and rooms and make necessary changes to buildings to ensure air tightness.

**8281.30 Assembler, Stationary Petrol Engine** assembles stationary petrol engine with finished components, tunes engine and tests performance. Checks condition and cleaning of various engine parts such as crankshaft, camshaft, connecting rod, pistons, tappets, valves, valve guides, spring etc. and measures appropriate parts to assess serviceability, reconditioning or replacement as necessary. Scrapes bearings, grinds valves, files piston rings, assembles pistons with connecting rods and fits camshaft, crankshaft, fly wheel, cylinder block, piston assemblies, valves etc. according to design in order of sequence using hoisting device, stand, special tools and other implements ensuring necessary movement and clearances as specified. Sets valve timing, meshes timing wheels on cam and crankshafts and fastens cylinder head with gasket on cylinder block. Assembles and fits fuel pumps lubrication and fuel pipes, sparking plugs etc. Fits distributor according to ignition timing and makes electrical connections with battery, ignition coil, plugs cut out, etc. Fits radiator, fan pulleys, water pump, etc. Sets tappets and starts engine. Tunes engine and runs it for prescribed number of hours. May test engine horse power, solder nipples, anneal pipes etc. May suggest alterations in fittings.

**8281.35 Assembler, Stationary Diesel Engine** assembles stationary diesel engine from finished components, makes



## NATIONAL CLASSIFICATION OF OCCUPATIONS

adjustments, sets alignments, clearances etc. and ensures stipulated performance. Places diesel engine block on jig or other fixture using hoisting equipment. Fits or assembles various parts to engine block such as crank shaft, cam shaft, main bearing, connecting rods, timing gears pistons, fuel pump, atomiser, automatic timing mechanism, exhaust manifold suspension, etc using spanners, wrenches, screw drivers and other special tools and devices. Collects various parts like nuts, bolts, washers etc. from nearby bins and fits or screws them to cylinder head. Checks assembled units or parts at every stage for prescribed accuracy, alignment, tolerance etc. using special tools. Records part number fitted or assembled to engine block and notes factual details or position regarding clearances, adjustments etc. made. Assembles such other sub assemblies like starter, alternator timing chain, heater assembly switch, radiator etc. Places assembled engine at central places for engine test. May conduct engine test on dynamo meter and note actual tuning conditions and make necessary adjustments. May overhaul and repair engines or other components.

**8281.40 Assembler, Tractor** assembles tractors and other earth moving equipment from finished components and parts. Collects or places at fixed points different component parts, sub assemblies etc. required for assembling. Lifts by hand or by hoisting equipment different frames, (upper and lower) body and other parts. Fits parts together in set order using nuts, bolts, rivets etc. and with necessary wrenches, spanners and other special tools. Checks at every stage assembled parts for movement, performance etc. Attaches various mechanical parts such as brakes, steering assembly, fuel system, propulsion equipment, etc. Sets required parts in machine for proper seating and alignment. Sets alignments and adjusts required clearances. Mounts engine to vehicle giving necessary engine bed mountings and tightening with nuts and bolts. tests performance of engine and other mechanical equipment at stationary position. May drive vehicles outside and test performance. May repair and overhaul engines and other equipment. Is designated as **ASSEMBLER AGRICULTURAL MACHINERY** if

engaged in assembling chaff cutter, husking, machine, ploughing machine and such other agricultural machines. May overhaul and set atomiser for fuel spray into engine combustion chamber.

**8281.45 Assembler, Turbine and Steam Engine** assembles turbine and steam engine from finished components by further tooling. Examines drawings and specifications. Checks parts and components to rectify faults if any and ensures accuracy. Checks alignments, scrapes bearing, examines and cleans parts, (openings) fits rotors blades, nozzles, injectors, super heaters valves, crankshaft, piston assemblies with connecting rods, steam chest covers etc. as appropriate for turbine or steam engine by further tooling as necessary. Sets glands and packing while fitting to prevent leakage of steam. Checks condenser and fits steam pipes according to drawing and insulates them by lagging to prevent loss of heat. Fits lubrication pipes and sets them to order. Adjusts valves, clearance etc. as prescribed. Sets timing and couples turbine with alternator or steam engine with generator. Adjusts governor, starts turbine or steam engine as appropriate and balance them for power generation. May drill holes, check and adjust boiler fittings etc, if necessary.

**8281.50 Assembler, Loco Engine; Erector, Locomotive; Fitter Loco Erection** assembles tender and local engine from finished components by further tooling according to specifications. Sets frame of locomotive at level by manipulating jack and using spirit level for correct alignment. Aligns cylinder back cover, fits guide bearer to frame and marks alignment for necessary machining. Assembles and fits slide bars of locomotives by reaming, drilling, grinding, etc., ensuring specified measurements using micrometers, calipers, etc. Aligns wheels, and gets engine and boiler lifted on frame. Fits wheels and expansion shoe according to alignment of boiler with frame. Fits ash-pan to boiler, drills saddle bolt and reams reversing screws stand of frame. Fits cab platform ejector, lubricator, injector etc. to boiler. Assemble cab with engine according to specifications. Fits side rods and other motion parts of locomotive and sends it for blow through. Couples motion parts, fits valves, front cover of cylinder and steam

## NATIONAL CLASSIFICATION OF OCCUPATIONS

chest permanently. Fits operating and sanding gear and sends locomotive for testing. Rectifies erection defects according to test reports and assembles tender with locomotive.

**8281.55 Erector, Machines and Equipment** installs, erects and changes lay out of machines and equipments in mills, factories, workshops etc. according to instructions or specifications. Studies drawings and lay out sketches of machines or equipment to be erected. Calculates available floor area in relation to dimension of machines, working space required etc. and marks areas on floor for foundations of machines. Guides' construction of foundations and setting of foundation bolts and fixtures according to type of machines to be installed and allows foundations to dry up and settle for required number of days. Places base or holding device of machines through foundation bolts or on fixture one by one, using lifting equipment and aligns and levels them with spirit level. Fastens or secures machines tightly to foundation bolts or fixtures and rechecks alignment and levelling to ensure correctness. Makes adjustment if necessary and gets grouting of foundations done. Allows grouting to dry up and adjust position of different parts of machine for efficient operation. Gives necessary power supply to machine or connects machine to line shaft. May run machine and observe performance. May assemble, repair and overhaul machines. May specialise in erecting particular type of machine or equipment such as printing machine, lathe, pneumatic hammer, grinder, pumps, etc.

**8281.60 Assembler, Continuity** assembles specific finished parts, needing no further tooling to form component or unit in proper sequence as member of team usually on mechanical conveyor. Sits as member of team on either side of moving conveyor or like arrangement carrying components or units for further assembly. Keeps tools and required components for assembly handy, close to conveyor line. Collects incoming part or unit from conveyor line, fits allotted component to it using hand or power tools as designed. Checks whether assembled and completed unit conforms to specified standards using simple tools, gauges,

measuring instruments, etc. Places assembled unit, article or material on moving conveyor to be carried forward for further assembly or otherwise. May mark article with trademark or symbols using stampings. May keep account of work attended to or assembled. May back and label articles. May assemble domestic appliances, office equipment, commercial goods, machine parts etc. and be designated accordingly.

**8281.65 Assembler (Automobile)** assembles different parts and units of automobile, installs them on frame and makes necessary connections, adjustment, settings etc. according to specifications. Assembles engine, gear box, front and rear axles etc. individually according to specifications and ensures their stipulated performance. Places body frames, side members, supporting frames etc. in special jigs and secures them tightly by fixing bolts and nuts to different parts. Assists Spot Welder to spot weld body frame. Fits front and rear axle to body and tightens with nuts and bolts. Collects various components and parts from sub-assembly or from nearby bins and fits them to body or chassis as appropriate. Lifts assembled engine manually or using hoisting equipment carefully, places it over engine frame of chassis and secures it in position with bolts and nuts. Fits clutch, gear box propeller shaft, etc. and makes necessary settings and adjustments. Gathers such parts like radiator, alternator, water pump, hydraulic/vacuum brakes etc. from nearby sub-assembly line and fits them to vehicle. Makes necessary adjustments, connections and alterations to fittings as directed. Checks for wheel alignment using special equipment and makes necessary adjustments to brakes. Delivers assembled vehicle to trim line for fitting of upholstery, door and window glasses, door locks and other fittings. Lubricates various moving parts of vehicle with grease or oil. May assemble only engine, gear boxes, axles, hydraulic brake system etc. in sub-assembly line and be designated accordingly.

**8281.70 Assembler (Motor Cycle); Assembler Fitter, (Motor Cycle)** assembles motor cycle, auto-rickshaw, scooter, etc. from finished components, makes necessary settings and adjustment and ensures their

## NATIONAL CLASSIFICATION OF OCCUPATIONS

correct performance. Keeps various assembly parts in convenient bins near work table. Assembles motor cycle or scooter engine from various parts such as piston, crank shaft, valves, tappets etc. by necessary tooling, settings and adjustments and fits it securely with bolts and nuts on machine frame ensuring correct balancing and alignment. Fits parts and components in prescribed order of sequence and assembles various units like gear mechanism, clutch, kick starter, etc. Makes necessary checks and adjustments to fittings and to assembled units at every stage using gauges, calipers and other devices and ensures that fittings conform to prescribed specifications. Gives various mechanical and electrical connections like driving chain, control cable, control levers, switches to handlebar, magneto cables, oil levels etc. to machine. Starts engine, runs it on idle test and rectifies any defects to engine, clutch, gear box etc. noticed. Rejects defective parts and replaces them with new ones. Rectifies defects indicated on road test by further settings and adjustments as necessary. Lubricates all moving parts and points with grease gun. May work on batch or line assembly and assemble various units like frame building fork assembly, wheel building, brake assembly, clutch assembly, fuel tank fitting etc. May drive motor cycle on road to test for efficiency.

**8281.75 Assembler Frame, Aircraft** fits and assembles components of aircraft frame in jig. Studies drawings and selects parts according to specifications. Marks, trims, chamfers parts and assembles airframe components in jig, doing supplementary tooling where necessary. Checks alignment, assembly fits, clearance, etc. using appropriate devices and precision instruments and ensures correct setting. Secures members temporarily with fasteners or by tack holding and marks locations for rivet holes. Drills, reams and countersinks holes in members for subsequent rivetting. May replace, repair and modify passenger galley and toilet structural parts. May check fuselage for structural weakness and make necessary repairs and modifications. May check pressure seal for sealing aircraft cabins from leaks. May operate drilling, grinding and other workshop machines and replace or repair airframe parts.

**8282 ELECTRICAL EQUIPMENT ASSEMBLERS**

Electrical equipment assemblers assemble the components or parts of electrical equipment, according to strictly laid down procedures.

**8282.10 Battery Assembler** assembles various components to make complete storage batteries. Assembles negative and positive plates of cell with wood or fiber separators in between each pair of plates to form cell unit. Fits assembled cell-plates in cell and covers each cell with lid. Places cell units in position in battery casing and connects them by soldering their terminals with lead rod. Fits lead caps over terminals, marks terminals with respective polarity signs and seals top of assembled battery with molten pitch. May fill assembled battery.

**8282.20 Assembler Drycell (Battery Manufacturing)** assembles various components to make dry cells used in flash lights, radios, telephones, etc., Obtains various components such as empty zinc containers, molded carbon electrodes, chemical paste, card board washers, metal caps for carbon rods, etc. for making cells. Sets positive carbon rod centrally in zinc container and fills container with prescribed quantity of chemical paste with spoons. Allows paste to solidify and fits card board washer through sticking carbon rod on open end of container. Fits metal cap on carbon rod and seals container top with plaster. Slips paper covering over cell prepared. May pack dry cells in packets. May operate automatic machines to assemble dry cells.

**8282.30 Battery Repairer** repairs used and defective storage batteries. Checks voltage, condition of container, sealing, terminals etc. of battery and determines specific gravity of electrolyte (battery solution) with hydrometer to ascertain further serviceability. Charges electrolyte solution or brings it up to required specific gravity by addition of acid or distilled water as necessary for further service by charging, if possible. Empties all acid from used up battery, melts and removes sealing pitch with gas torch, cuts off connecting rods of cells with hacksaw and removes battery plates from container. Examines condition of cell plates, separators etc. and replaces

## NATIONAL CLASSIFICATION OF OCCUPATIONS

defective parts. Reassembles battery by fitting new cell plates in position and pours hot pitch to seal cells within case. Connections cell with new lead rods and solders extreme ends with positive and negative terminals as designed. Pours appropriate quantity of requisite strength in cells to submerge battery plates and gets battery put on charge. May charge battery himself on electric charging equipment.

**8282.40 Assembler, Electrical Accessories** assembles mechanical parts of electrical equipment, such as light sockets, switches, terminal boards, and plugging devices: Fits together parts, such as socket bases, shafts, contact fingers, and springs, in specified sequence, using fixtures, screwdrivers, and air nut runners. Tests actions of moving parts and listens for unusual sounds to detect defective parts for faulty operation. Verifies completed assembly against pictorial drawings.

**8282.50 Electric Motor Winder** assembles and tests electric motor and generator stators, armatures, or rotors: Inspects cores for defects and aligns laminations, using hammer and drift. Files burrs from core slots, using hand file, portable power file, and scraper. Lines slots with sheet insulation and inserts coils into slots. Cuts, strips, and bends wire leads at ends of coils, using pliers and wire scrapers. Twists leads together to connect coils. Taps coil and end windings to shape, using hammer and fiber block. Tests windings for motor-housing clearance, grounds, and short circuits, using clearance gauge, growler, spring-steel blade, telephone receiver, insulation tester, and resistance bridge. Winds new coils on armatures, stators, or rotors of used motors and generators. May rewind defective coils.

**8282.60 Calibrator, Electrical** assembles parts of electrical apparatus such as coils, condensers, etc., to determine capacity for passing current. Selects electrical wire of prescribed or required resistance and makes coils of specified number of turns of length in coil winding machine. Dries coils in annealing chamber for required period. Dips coil in paraffin wax bath to make it water proof. Solders specified length of copper wire to two terminals of coil using electric soldering iron. Measures resistance capacity of coil by connecting leads of coils to meter (galvanometer). Switches on and allows

current to pass through. Notes reading on meter and ensures that it remains within permissible limits. Calibrates coils to prescribed scale by soldering copper wire of varied lengths and observing readings. Fits calibrated coil to switch boxes and gives connection to contact points. May fit and assemble precision instruments.

**8282.90 Electrical Equipment Assemblers, Other** include workers who assemble the components or parts of electrical equipment, according to strictly laid down procedures not elsewhere classified.

**8283 ELECTRONIC EQUIPMENT ASSEMBLERS\**

Electronic equipment assemblers assemble the components or parts of electronic equipment, according to strictly laid down procedures.

**8283.10 Assembler Precision Instrument** fits and assembles finished mechanical parts of precision instruments such as binoculars, microscope level, cameras, gauges etc. according to drawings by further tooling, if necessary. Checks finished components with micrometer, vernier, slip gauges and other precision measuring instruments and devices and assembles them step by step in proper sequences according to drawing using spanners, screw-driver, adopters and other hand tools. Fits lenses and metal or wooden accessories like stand (tripod), holders, boxes etc. as specified. Checks whether assembled units conform to specifications, replaces faulty units or components and ensures stipulated performance and sensitivity by standard tests. May repair precision instruments. May perform minor machine operations on instrument makers' lathe or drilling machine. May be designated according to type of instrument assembled.

**8283.20 Assembly Operator (Telephone and Telegraph Equipment Mfg.)** assembles finished components of telephones, switches, relays, etc. in order of sequence, usually working on conveyor belt system, into sub and final assemblies by soldering, screwing, painting and other minor machine operations to form complete unit. Feeds Bakelite case to conveyor belt, fixes cards to dial and puts capline screws on key plate. Prepares, checks and fixes ringer coils, magnetizes

## NATIONAL CLASSIFICATION OF OCCUPATIONS

magnet road, assembles bell hammer and base plate, fits butter fly bracket and cradle switch, inserts plunger pastes, diagram and performs other tests to make sub-assemblies by screwing, soldering, minor machine operations and setting parts together. Assembles and links terminals, fixes ringer assembly, induction coil, condenser and dial block to base plate and wires and solders tag block. Sets tag block to base plate. Connects induction coil, condenser, ringer and dial block, wires spring combination, fits gauges, adjusts bell hammer and performs other tasks as necessary. Fixes receiver, card, etc. and makes necessary fittings, adjustments and electrical connection to form complete unit. May work at different stages of assembly.

### **8283.30 Assembly Operator (Radio Mfg.)**

assembles various components of radio set by fitting and soldering parts together as designed to form sub-assemblies and fits them to printed circuit board following specifications and using handtools to make complete wireless receiving set. Collects required components or parts such as chassis, transistors, resistors, speaker, etc. and places them at convenient position on worktable. Cuts prescribed lengths of electric wires of different colours using, cutter, hand knife or blade. Solders ends of wires to marked points according to wiring diagram, using suitable electric soldering iron. Assembles various parts of wireless receiving set in proper order to make different sub-assemblies such as transformer switches, tuning controls etc., using pliers, spanners, screw driver and other hand tools. Fits sub-assemblies securely to chassis and ensures that all nuts and bolts are and terminals of wires are properly soldered to respective points. Selects appropriate types of electronic components and fits them to circuit board or plugs fitted to chassis. Gets assembled chassis checked for correctness. Fits chassis in appropriate Fibre or Bakelite cabinet and securely holds it in position by tightening chassis bolts. Fixes various control knobs to complete receiving set. May adjust and replace defective or improperly functioning circuitry and electronics components, using handtools and soldering irons. May test for efficiency and performance. May be designated as **METAL PAPRTS ASSEMBLER, CHASSIS ASSEMBLER, TRANSFORMER ASSEMBLER, CABINET ASSEMBLER**

etc., according to stage and nature of work done.

### **8283.40 Form Layer, Cables (Telephone and Telegraph Equipment Mfg.)**

marks dimensions on cable board and fixes nails or jibs on it for making cables used in selector racks, relay sets, etc. Studies blue print and specifications of lay out of cables to be formed. Marks different lengths, bends etc. on plywood sheet cable board according to size and type of cable to be made. Drives nails or makes small holes and screws standard pins according to markings on cable board, following prescribed colour code and different cable connections. May assist in making cables.

### **8283.50 Cable Maker, Rack Wiring (Telephone Equipment Mfg.)**

forms insulated wire cable by hand used in telephone equipment. Studies specifications and collects insulated wires of required sizes, type and colour. Runs wires of appropriate colour through or over different points in form laid on cable board. Checks for dimension and cuts them at end points. Moulds and laces wires together with waxed twine to make cables. Puts correct tags on cable formed and passes them for inspection.

### **8283.60 Operator, Rack Wiring; Wireman, Rack Wiring (Telephone and Telegraph Equipment Mfg.)**

assembles and wires selector racks, relay set racks etc., used in telephone exchange. Reads instruction card and specification sheets. Assembles on rack all components such as cable brackets, tag block bracket, shelf jacks, relays, fuse panels, buzz bars etc. Mounts cables on rack and connects wires to tag block according to specified colour code. Solders contacts, squared wiring formation and ties and laces cables with waxed card using pliers, screw drivers, soldering iron etc.

### **8283.90 Electronic Equipment Assemblers,**

**Other** include workers who assemble the components or parts of electronic equipment, according to strictly laid down procedures not elsewhere classified.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

### 8284 METAL, RUBBER AND PLASTIC PRODUCTS ASSEMBLERS

Metal, rubber and plastic products assemblers perform limited, specialised tasks in assembling the metal, rubber or plastic components or parts of various types of products such as toys, sports articles, bicycles, etc., according to strictly laid down procedures.

**8284.10 Assembler Bicycle** assembles different cycle components and parts to make complete bicycle. Keeps or stocks different components and parts such as frames, handles, pedals, mudguards, wheels, washers, nuts and bolts at convenient position near work table. Fits different parts together to form units such as handle bars with brake attachment, front fork, rear and front wheel, etc. Places cycle frame in special jigs and fixtures and assembles different units like handle bar, fork, wheel, driving chain, mud-guards etc. using washers, nuts and bolts to form complete cycle. Examines and tests assembled units and cycle for correct alignment. Adjusts wheel nuts and screws for proper tension of driving chain, free movement of wheels, proper functioning of brakes, etc. as necessary. Tests performance of assembled cycle and makes necessary adjustments. Oils and greases important friction point. May perform duties in sub-assembly of free wheel mechanism, building and truing of cycle rims, fitting of tyres and tubes, mounting of pedal, etc. May assemble tricycles, perambulators, etc.

**8284.20 Assembler, Sewing Machine** assembles sewing machine from finished components using jigs, fixtures, hand tools, gauges etc. Collects finished components from stores and sets them in order of fitting. Assembles different units according to drawing or instructions using jigs, fixtures etc. as necessary. Fits assembled units and other components such as Crankshaft, Oscillating rock shaft, feed rockers, needle bar, lifter, bobbing housing driving wheel, handle etc. on body frame with bolts, nuts, screws etc. in order of sequence using hand tools, jigs, fixtures and other devices by further tolling if necessary. Checks alignments and makes necessary adjustments to ensure free and easy working of each part. Fixes shuttle race, needle plate, slide plate bobbing winder, etc.

and gives finishing touches. Mounts completed unit on wooden base or stand according to type of machine assembled. Sets wound bobbin, fixes needle and threads it. Tests assembled machine by trial stitching and ensure desired performance by further adjustments if required. Cleans machine and oils moving parts. May assemble specific parts in order of sequence and be designated accordingly if engaged in mass production establishments.

**8284.30 Assembler (Plastic Product)** performs any combination of tasks involved in assembly of plastic articles, such as bags, baby pants, coolers, fiberglass chairs, containers, trays and inflatable toys. Marks cutting lines on plastic sheet of sections to be assembled, following template. Cuts sections from sheet, using knife, scissors, or power cutting machine. Positions sections on jig and aligns seams and air valves. Brushes glue along edges of section, seals edges with hot iron or electric-sealing machine, and trims edges with scissors. Examines articles for defects, such as smeared paint, cuts, and wrinkled seams. Fills inflatable article with air and submerges it in water to detect leaks. Positions plastic patch over leak and fuses it to article, using electric sealing machine. Cleans markings and dirt from article with solvent, folds article, and places it in bag for shipment. Heats cooler brackets, using hot plate, and secures cooler, using bench fixture. Presses bracket into depressed section of cooler to attach bracket. May record number of articles packed. May sort plastic sheets in bins. May seal decorative pieces of adhesive-backed cloth on garment parts, using automatic heat sealer.

**8284.40 Assembler, Metal Furniture** performs any combination of following tasks to assemble metal furniture. Drills holes in parts, such as backrests, covers, and seats, using power drill and template. Fits parts together and fastens them temporarily with clamps and presses. Bolts, staples, or screws parts together, using handtools, such as pliers, wrenches, pneumatic screwdrivers, and staplers. Rivets parts together, using hand or pneumatic hammer. Inserts such parts as casters and scuff plates into holes or slots. Bends fastening devices and fits interlocking parts together with hammer or rubber mallet or by striking parts against floor or workbench. Applies cement to cushions and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

covers, using brush or spray gun, and joins parts by hand. Pulls and fastens drawstrings, wires, or springs to join precut upholstery covers to armrests, seats, and other parts, using handtools. Inserts drawers into slides and adjusts slides to fit drawer surfaces. Packs furniture for shipment. May bend metal parts, using bending machine.

### **8285 WOOD AND RELATED PRODUCTS ASSEMBLERS**

Wood and related products assemblers assemble the components or parts made from wood or related materials, of various types of products, according to strictly laid down procedures.

### **8286 PAPER BOARD, TEXTILE AND RELATED PRODUCTS ASSEMBLERS**

Paperboard, textile and related products assemblers assemble the components or parts made from paperboard, textile, leather and related materials, of various types of products, according to strictly laid down procedures.

**8286.10 Assembler, Finger Buffs (Textile Product)** tends machine that forms finger buffs to lacings to produce fabric buffing wheels: Positions lacings over center guide of circular tray (form) and secures lacing with weight. Inserts finger buffs under points of lacing, using marks on tray as guides. Positions tray under ram of pressing machine and depresses pedal to lower ram that forces points of lacing into material. Removes assembled buffing wheel from tray. May tend pressing machine to press parts assembled by other workers. May tend press to insert cardboard, wood, or metal cores in cloth buffing wheels.

**8286.90 Paperboard, Textile and Related Products Assemblers, Other** include workers who assemble the components or parts made from paperboard, textile, leather and related materials, of various types of products, according to strictly laid down procedures not elsewhere classified.

### **829 OTHER MACHINE OPERATORS AND ASSEMBLERS**

Other machine operators and assemblers operate and monitor machines which pack,

label, and if needed, add revenue stamps to products, packages and containers, or assemble, according to strictly laid down procedures, products whose component parts are made of a wide range of materials.

### **8290 OTHER MACHINE OPERATORS AND ASSEMBLERS**

Other machine operators and assemblers operate and monitor machines, which pack, label, and if needed, add revenue stamps to products, packages and containers, or assemble, according to strictly laid down procedures, products whose component parts are made of a wide range of materials.

**8290.10 Supervisor and Foreman, Material and Freight Handling** Supervises slinging, rigging and handling of material and freight for loading, unloading or placing them as required. Examines material or freight to be handled for size, approximate weight, appropriate position for balanced slinging, etc., and determines safe and best method of handling them without damaging. Directs and coordinates operations of Slingers, Cable Splicers, Riggers, Crane and Hoist Operators, etc., in slinging, raising, moving, lowering, loading, unloading, placing and other activities ensuring safe load and necessary precautions according to type of material or freight handled. Takes special precautions while handling fragile, inflammable and explosive materials to avoid breakage and accidents. Applies emergency measures where necessary and ensures safety of workers around. May maintain record of material handled.

**8290.20 Supervisor and Foreman, Checking, Sorting, Packing and Related Activities** Supervises performance of workers engaged in testing, sorting, weighing, counting, packing and labelling drugs and other materials by automatic or manual processes and ensures correct operations. Studies specifications and details of work to be done and instructs workers accordingly to set machines and equipment or perform manual tasks as prescribed. Gets supply or speed of conveyor belt adjusted according to performance and prescribed out turn, in case of continuous automatic system and ensures observance of sequence of operations and

## NATIONAL CLASSIFICATION OF OCCUPATIONS

necessary precautions to avoid wastage. Relieves workers as necessary to avoid fatigue and keeps machines and equipment in working order. Trains new entrants. Maintains record of daily out turn. May make shift arrangements to avoid stoppages.

**8290.30 Building Insulator, Machine** blows and packs insulating material, such as mineral wool, shredded cork or asbestos with power driven machine into cavities between walls, floors and ceilings in buildings. Carries hose nozzle to working position. Inserts hose nozzle into openings in floors, walls or ceilings and gets blower started to release compressed air which blows insulation material through hose into them. Directs hose nozzle to distribute insulating material as specified. May insulate open spaces, such as cupboards, walls or attic, roofs by nailing sheets of insulating material to studs or rafters.

**8290.40 Saw Grinder, Machine; Saw Doctor** sets and operates saw grinding machine for sharpening band or circular saw teeth with rotary grinding wheel. Inspects damaged saws and cuts broken teeth from band saws by shearing out damaged section of blade. Joins ends of band saws by beveling ends and welding or brazing them together. Brazes or welds cracks in saw blades and removes dents. Twists, kinks etc. by hammering. Sets teeth of saw at correct cutting angle using hammer and swage or special pliers and fixes saw blade in grinding machine. Sets and starts machine to get each saw tooth ground in turn. Removes sharpened blade and finishes it with hand tools. May trim circumference from damaged circular saws and cut new teeth.

**8290.50 Gem Grinder, Machine** grinds precious stones to required shape and size by machine. Fixes roughly shaped stone, after sawing or cleaning, in dop ( metal device to hold stone) with shellac. Fixes dop in machine spindle and positions it in centre. Places other stone in another dop and fixes it in hand-rod. Starts machine and presses hand-rod with stone against revolving stone in spindle to rough out uneven surfaces. Checks stone frequently while grinding with magnifying glass and grinds it to required shape and size. Uses different types of dop according to shape required. Is designated as **DIAMOND CUTTER** or **DIAMOND GRI**

**NDER** if engaged in grinding diamond. May use electrically operated disc type grinding wheel for grinding stones.

**8290.60 Gem Polisher, Machine** polishes top portion and gives facets to stone. Fixes stone to be polished in dop with shellac. Sets dop in tank (wooden rectangular device to hold dop) or holds dop in special type of clamp. Starts machine, applies diamond powder to revolving steel disc and holds tank or clamp on it to press and polish stone to required finish. Checks stone frequently with magnifying glass while polishing to ensure required finish. May wash polished stone in caustic soda solution or keep it in lemon juice for prescribed period to brighten it.

### 83 DRIVERS AND MOBILE PLANT OPERATORS

Drivers and mobile plant operators drive and tend trains and motor vehicles, or drive, operate and monitor mobile industrial and agricultural machinery and equipment, or execute deck duties on board ship and other water borne craft.

### 831 LOCOMOTIVE ENGINE DRIVERS AND RELATED WORKERS

Locomotive engine drivers and related workers drive locomotive engines to transport freight or passengers, manoeuvre railway coaches or operate railway signals.

#### 8311 LOCOMOTIVE ENGINE DRIVERS

Locomotive engine drivers drive, or assist in driving, locomotive engines to transport passengers and freight.

**8311.10 Loco Driver, Mines** operates electric or diesel loco-engine to haul empty and loaded cars or tubs in mines on narrow and winding tracks. Receives instructions on haulage destination of material. Checks engine equipment, audible signals, head lights, warning bell or whistle, accumulator charge, etc. and ensures that adequate quantity of sand is stored in sand chamber for releasing on track to have adequate grip. Ensures that cars or tubs are coupled up together and linked securely to engine to prevent tipping. Manipulates control levers and pedals to start, operates and stops loco engine as needed.



## NATIONAL CLASSIFICATION OF OCCUPATIONS

Lubricates and makes minor repairs to locomotive. May operate track switch and couple and uncouple cars and locomotive.

### **8311.20 Driver, Railway Engine (Steam)**

drives steam engine of railway train on rail routes for transporting passengers and goods. Takes charge of engine from Loco Shunter. Examines various parts of engine for operational efficiency, drives engine from loco-shed to station yard and attaches it to train. Ensures that first coupling is properly fitted and all gauges and meters are working properly. Opens steam cock of vacuum ejector to create vacuum and receives token or line clear from Station Master. Whistles when station signals become green or lowered to indicate readiness of engine to start. Starts train on receiving signal from Railway Guard. Drives engine along scheduled route at scheduled timings regulating speed according to restrictions and cautions on railway. Exchanges signals with Guard at each station after start to ensure his presence in train. Supervises and checks work of Fireman. Checks essential parts of engine, oils them after along runs, ensures that engine contains sufficient coal and water and recoups deficiency at working. Drives engine to loco-shed on completion of journey. Fills up necessary forms, detailing major defects or required repairs and hands over engine to Loco Shunter.

### **8311.30 Driver, Railway Engine (Diesel)**

drives diesel engine of railway train transporting passengers and goods. Takes charge of engine from Loco Shunter after examining various parts of engine for operational efficiency. Ensures that engine contains sufficient diesel and drives engine from loco-shed to traffic yard or station for attaching it to train with which booked. Receives token for movement from Station Master and starts train on receiving signal from Train Guard. Drives engine along scheduled route, regulating speed according to restrictions and clearance of track and keeps to scheduled timings. Exchanges signals with Train Guard en-route to maintain mutual contact. Supervises work of Cleaner and checks operation of engine by observing readings of different gauges and instruments. Drives engine to loco-shed on completion of journey, fills up necessary forms detailing required repairs and hands over engine to

Loco Foreman or Loco-Shunter. Conducts running repairs in emergent cases. May also drive loco engine (steam), or petrol driven rail car.

### **8311.40 Driver, Railway Engine (Electric)**

drives electrically propelled railway engine on scheduled rail routes for transporting passengers and goods. Takes charge of engine from Loco Shunter after examining various parts of engine for operational efficiency. Drives engine from loco-shed to railway station and ensures proper coupling. Receives line clear token and signal from Station Master and switches on engine on receiving green signal from Guard of train. Drives engine along scheduled routes, regulating speed according to restrictions and cautions on railway track. Maintains arrival and departure of train at stations to scheduled timings. Exchanges signals with Guard after every start of train to ensure his presence in train and supervises work of assistants in engine. Drives engine to loco-shed on completion of journey, fills up necessary forms, detailing required repairs and hands over charge to Loco Shunter. May attend to running repairs of mechanical and electrical defects in engine, en-route.

### **8311.50 Driver, Shunting (Loco); Loco Shunter**

drives loco engine on rail tracks within traffic yard for formation of and breaking up of passenger and goods trains under direction of Yard Master. Takes charge of engine after checking up various parts of engine for operational efficiency. Obtains instructions from Yard Master for breaking up and formation of trains. Drives engine according to hand or yard signals from Signaller, Rly. Points Jamadar, Railway and Pointsmen, Railway, and couples it to coaches, goods or empty wagons for placing them at required places and formation of trains. May work light train in case of emergency. May attend to minor repairs of engine and supervise work of crews in engine. May drive diesel railway engine or electric railway engine for shunting.

## **8312 RAILWAY BRAKERS, SIGNALLERS AND SHUNTERS**

Railway brakemen, signallers and shunters take charge of and safeguard railway freight trains during runs, control the movement of railway

## NATIONAL CLASSIFICATION OF OCCUPATIONS

traffic by operating signals, switch rolling stock and make up trains in railway yards, make up trains for hauling in mines and control their movement.

**8312.10 Signalman, Railway; Cabinman** controls flow of railway traffic over section of line within his jurisdiction by operating signals recorded on the control graph and setting of points from control tower or cabin under instructions from Station Master. Receives and transmits information about train's movement by bell signal or telephone after exchanging secret numbers from train dispatcher or station master at Railway Station. Operates lever on which slot is transferred by train dispatcher. Controls movement of shunting traffic within railway yards by setting points and lowering signals when signalled by shunting Jamadar and Pilot Jamadar. Adjusts distant signals by slackening signals wires at night and tightening them in morning by adjusting screws and reports defects to senior officers. Signals trains at night when visibility is poor using hand lamp, fixing fog signals on railway line at fixed distances to restrict speed or to stop train in emergency during day or night when signals are off or to allow train to proceed further. Maintains contact with station master through telephone and provides information about traffic movement on lines within his jurisdiction. Keeps contact with shunting jamadar through hand signals for proper shunting operations. Cleans and oils levers to keep them in perfect, order. May control opening and closing of gates at level crossings; may light signal lights at night at small railway stations.

**8312.20 Shunting Jamadar; Pilot Jamadar; Points Jamadar (Railway)** supervises work of Pointsmen Railway operation of points and setting of railway lines in non-interlock yard and guides movement of shunting engine in railway yard for attaching to or detaching wagons and carriages from trains. Receives directions from Station Master or Yard Master regarding shunting of trains in yard or movement of wagons, carriages in yard from one place to another. Informs cabinman and pointsman concerned about shunting plan; directs shunting engine driver using hand flag lamp etc. for movements of engine when points are set to form trains. Supervises setting of lines and completes coupling and

uncoupling of carriages and wagons within prescribed time. May couple or uncouple wagons and carriages in absence of Pointsman.

**8312.30 Pointsman, Railway** operates hand points for setting railway lines under instructions of Points Jamadar or Station Master in non-interlock and non-signal lines for shunting and arrival and departure of trains. Sets points under instructions from Station Master or Points Jamadar. Locks facing-points in non-interlock yards or non-signal lines for safeguard against derailment of train; signals trains using hand flag or light to proceed in right direction. Ensures that other connected lines are clear of obstruction and brake of stationery train is away from fowling mark (a mark indicating the minimum distance required between two lines). May couple and uncouple wagons and coaches during shunting of trains.

**8312.40 Traffic-Shunter, Railway** marshals goods and passenger trains in station yard according to instructions received. Receives instructions from Yard Foreman regarding formation of train, attaching or detaching coaches and wagons to and from trains, shifting empty or through coaches and wagons on sidings etc. Sets lines according to plan and signals Loco Shunter to proceed towards directions indicated. Attaches coaches or wagons by screwing hooks for tightness or unscrews hooks for breaking or re-arranging train or detaching engine, as required.

**8312.50 Braker, Passenger Train** performs any combination of following duties on passenger train: Inspects equipment, such as couplings, airhose, journal boxes, and handbrakes, to ensure that they function properly. Assists passengers to board and leave train. Places passengers' baggage in rack above seats on train. Answers questions from passengers concerning train rules, station, and timetable information. Turns knobs and pushes switches on control panel to regulate air-conditioning, heating, and lighting on train for comfort of passengers. Sets warning signals, such as flares, flags, lanterns, or torpedoes, in front of and at rear of train during emergency stops to warn oncoming trains. Makes minor repairs to couplings, airhoses, and journal boxes, using

## NATIONAL CLASSIFICATION OF OCCUPATIONS

handtools. Reports to **Guard, Passenger Train** if any equipment requiring major repair.

**8312.90 Pointsmen, Signalmen and Shunters Railways, Other** include all other workers engaged in setting lines, signalling and shutting railway coaches, engines etc., not elsewhere classified.

### 832 MOTOR VEHICLE DRIVERS

Motor vehicle drivers drive and tend motor vehicles to transport materials, goods and passengers.

#### 8321 MOTOR CYCLE DRIVERS

Motorcycle drivers drive and tend motor cycles or motorised tricycles equipped to transport materials, goods and passengers.

**8321.10 Driver, Auto Rickshaw; Driver, Motor Cycle Rickshaw** drives auto rickshaw on hire or as paid employee for transporting men and material, observing traffic rules and signals. Cleans and washes vehicle and does running repairs. May maintain book of journey.

**8321.20 Despatch Rider** delivers urgent messages, telegrams and important communications to addressees, riding auto or motor cycle, bicycle, etc. Receives urgent official messages, telegraphic or otherwise, from authorities for quick delivery to addressees. Keeps messages, telegrams for records in bag for security and carries them riding motor cycle, auto cycle, etc. according to road condition for delivery. Obtains receipt of delivery on peon book. May deliver dak in villages, riding on cycle or horse.

**8321.90 Motorcycle Drivers, Other** include drivers who drive and tend motor cycles or motorised tricycles equipped to transport materials, goods and passengers not elsewhere classified.

#### 8322 CAR, TAXI AND VAN DRIVERS

Car, taxi and van drivers drive and tend motor cars and vans to transport passengers, mail or goods.

**8322.10 Driver, Car, Chauffeur** drives motor car according to owner's requirement as paid employee. Observes road signals and traffic rules. Attends to minor repairs. May wash and polish car and maintain log book for journey. May also do odd jobs and run office or house-hold errands.

**8322.20 Driver, Taxi Car** drives motor car, observing road signals and traffic rules, to transport passengers from one place to another on hire, based on length of travel or as recorded in meter. Loads and unloads baggage when necessary and attends to minor repairs. Maintains account and renders it to owner, if necessary.

**8322.30 Driver, Ambulance** drives ambulance to transport sick, injured, or convalescent persons. Assists in placing patient on stretcher in ambulance; adjusts stretcher in secure position; takes sick or injured persons to hospital or to destination; exercises care in driving ambulance to avoid sudden motions, detrimental to patients; changes soiled linen on stretcher; administers first aid; maintains log-book of journeys performed. May shackle violent patients.

**8322.90 Car, Taxi and Van Drivers, Other** include drivers who drive and tend motor cars and vans to transport passengers, mail or goods not elsewhere classified.

#### 8323 BUS AND TRAM DRIVERS

Bus and tram drivers drive and tend buses or street tramcars to transport passengers, mail or goods.

**8323.10 Tram Car Driver** drives electric tram cars on scheduled routes in cities for transporting passengers to different localities. Checks before start that tram is in perfect running condition and all requisite material such as sidelights, tail lamp, gong, first aid box, etc. are provided in it; starts tram at scheduled time under directions or signal from Depot Starter, Tram; controls movement of tram in response to traffic signals, and signals given by Tram Conductor; studies running time schedules and adjusts movement of tram i.e. arrival and departure at specific places, accordingly, or

## NATIONAL CLASSIFICATION OF OCCUPATIONS

acts under instructions from Traffic Regulator, Tram assists passengers in emergency; directs Poleman, Tram to connect tram car pole with overhead electric line in required direction, keeps simple record of defects noticed in tram or in track. May collect fares and issue tickets in small tram or in absence of Tram Conductor.

**8323.20 Trolley Driver** drives electrically or mechanically operated trollies on rails for carrying material within or outside mills, factories or industrial areas; operates electrically or mechanically driven trolley to haul raw material, finished products, fuel and other material from one place to another within mills, factory, etc.; takes necessary precaution and restricts speed while driving within production centre as safeguard against hazards.

**8323.30 Driver, Bus** drives bus to transport passengers from one place to another either over long distance or in urban area. Checks fuel, oil, water, lights, brakes, destination board, etc. Ensures that vehicle is provided with tools and documents required under Motor Vehicle Act, such as registration book, road permit, complaint book, first aid box etc., before commencing run. Drives bus according to time schedule on prescribed route observing road signals and traffic rules. Starts and stops according to signals from Bus Conductor to pick up and drop passengers at recognised stops or on request.

**8323.40 Driver, Fire Brigade Vehicle** drives heavy motor vehicle equipped with fire fighting material for fighting fires or other rescue operations. Keeps firebrigade vehicle ready, duly equipped with material, to proceed to requisite site instantly; drives speedily, on receipt of instructions from Control to affected site following shortest route and sounding alarm; assists fire fighters in fixing ladders, connecting hoses etc. May ignore traffic signals to save time.

**8323.50 Driver, Road Test; Test Driver; Vehicle Tester (Automobile)** drives completed or experimental automotive vehicles under test conditions to detect mechanical and structural defects and to determine repairs required. Examines automobile, truck or bus before road testing to ensure that all equipment, such as

electrical wiring, hydraulic lines and fan belt are installed as specified, and verifies that vehicle has been serviced with oil, gas and water; starts engine and listens for sounds indicative of malfunctions of part or parts; drives vehicles over test tracks, city streets or highways, noting performance of clutch, gears, brakes and other parts of vehicle; tests motor tuning, cylinder compression, fuel consumption, wheel alignments, steering, horns, heater, wiper and power windows using testing devices; reports finding to supervisor or customer and recommends repair required. May examine disassembled engine, differential, or other part during repair.

**8323.60 Signalman, Tram** guides operation of tram cars on single track by signalling with flag or light. Acquaints himself with traffic rules, busy hours of work and any other special instructions issued by traffic authorities, ensures that traffic, control lights are in order, operates switches at control points for directing trams to their various destinations. May signal tram to stop or to proceed by waving red or green flags. May be designated as POINTSMAN TRAM, if engaged only in setting control points for directing trams to respective directions.

**8323.90 Bus and Tram Drivers, Other** include drivers who drive and tend buses or street tramcars to transport passengers, mail or goods not elsewhere classified.

### 8324 HEAVY TRUCK AND LORRY DRIVERS

Heavy truck and lorry drivers drive and tend heavy motor vehicles to transport goods, liquids and heavy materials over short or long distances.

**8324.10 Driver, Truck** drives motor truck for transporting goods from one place to another, observing road signals and traffic rules. Checks fuel, oil, water, lights, brakes etc., and ensures that vehicle is provided with tools, tarpaulin and all documents required under Motor Vehicles Act such as registration book, fitness certificate, route permit, etc., before commencing run. Attends to running repairs and keeps truck in working order. May make deliveries, collect payments and obtain and issue receipts.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8324.20 Tram Driver, Mines** drives electric cars for transporting mining material on surface or underground in small wagons, tubs etc. Inspects engine, electric connections, gasoline etc. provided in tram-car; attaches empty small wagons or tubs to tram car and positions them for loading mining material; shunts and detaches loaded wagons on surface or underground for transportation of material to other places through trolley or other vehicles; attaches empty wagons for repeating process; inspects engine or power line at end of shift. May manipulate levers to open or tilt cars to dump material; may fuel and lubricate engine.

**8324.90 Heavy Truck and Lorry Drivers, Other** include drivers who drive and tend heavy motor vehicles to transport goods, liquids and heavy materials over short or long distances not elsewhere classified.

### 833 AGRICULTURAL AND OTHER MOBILE PLANT OPERATORS

Agricultural and other mobile plant operators drive, tend, operate and monitor agricultural and other machinery and equipment for handling materials and heavy objects.

### 8331 MOTORISED FARM AND FORESTRY PLANT OPERATORS

Motorised farm and forestry plant operators drive, tend, operate and monitor one or more types of Motorised, mobile machinery or equipment used in farming or forestry operations.

**8331.10 Tractor Operator, Farm; Tractor Driver, Farm** operates and services farm tractor having different attachments for ploughing, harrowing, harvesting and other agricultural operations. Checks different parts of tractor to ensure that it is in proper working order. Collects, attaches and adjusts special equipment, required for different operations of tractor. Feeds tractor with fuel and demarcates land for ploughing. Starts tractor and drives it through fields at regulated speed depending on nature of soil and work. Controls operation of different attachments including turning of wheels by operating levers and pedals as required. Tows trailers laden with crops and other

materials when required. Cleans and oils machine. Maintains tractor and other implements in good working order and keeps record of fuel consumption. May supervise work of helpers. May detect mechanical defects and undertake minor repairs.

**8331.20 Operator, Farm Machines** operates and maintains various kinds of power, animal or hand driven farm machines used in agricultural, dairy, poultry and other farms. Fits and adjusts special equipment intended to be used in different power, hand or animal driven farm machine. Outlines area for operation. Harnesses animals to machine or implement and adjusts it if necessary. Drives power or animal driven machine through fields at regulated speed. Controls movements and operations of machine and attachments by operating levers or paddles as necessary. Checks performance, ensures efficient running, and refuels and lubricates machine when needed. Keeps machines and other implements cleaned, lubricated and in good working order. Maintains record of food and fuel consumption. May supervise work of helpers. May do minor repairs to machines and attend to minor ailments of animals used. May be designated according to machine handled.

**8331.30 Tractor Driver, Construction** operates petrol or diesel powered tractor to haul vehicles or implements such as trailers, wagon, graders, etc. for pushing, pulling or moving goods and material or dumping earth. Checks engine oil, radiator water, diesel or petrol supply and other important greasing points of vehicles. Checks that brakes and pedals of vehicle are in good condition. Fastens attachments, such as graders, trailers, plows, and rollers to tractor with hitch pins; releases brakes, shifts gears, and depresses, accelerator or moves throttle to control forward and backward movement of machine; steers tractor by turning steering wheel and depressing brake pedals. May couple and uncouple loads to and from tractor. May lubricate and repair tractor and attachments. May be designated according to type of power utilised as **DIESEL TRACTOR OPERATOR OR GASOLINE-TRACTOR OPERATOR**.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8331.90 Farm Machinery Operators, Other** include all other workers engaged in operating farm machinery for agricultural purposes, not elsewhere classified.

**8332 EARTH MOVING AND RELATED PLANT OPERATORS**

Earth moving and related plant operators operate and monitor machines to excavate, grade, level and compact earth or similar materials and lay surfaces of asphalt and concrete.

**8332.10 Bulldozer Operator** operates bulldozer (caterpillar tractor with concave steel scrapper blade mounted in front of chassis) to move, distribute and level earth. Starts motor and adjusts hand lever to regulate height of scrapper blade from ground; engages clutch and releases brake to drive machine to push earth; operates levers to level and distribute it; lubricates, fuels and makes minor repairs to machine. May push and pull other equipment with bulldozer.

**8332.12 Scrapper Operator** operates scrapper (power-driven machine fitted with mechanical scapping device) to scrape and level earth. Checks engine for fuel and oil supply, and water in radiator; starts engine and checks for proper functioning of various levers and controls; attaches double or four-wheeled scrapper attachment to tractor; drives tractor to place of work; operates levers to release scapping device (adjustable cutting blade and scoop); runs tractor over desired area to dig up earth, level and load it automatically into container; drives tractor to dumping location to unload earth from container. Repeats process until area scrapped to desired depth and levelled; lubricates, fuels and makes minor repairs to machine. May attend to minor repairs. May drive tractor for handling heavy goods and equipment. May operate special types of scapping machines.

**8332.14 Scrapper Loader Operator** operates mechanical scrapper loader fitted to tractor to cut, remove and convey earth or other material and load it in dumper. Adjusts toe (cutting device) fitted to scrapper to cut into earth at desired angle and position; manipulates lever on control panel of tractor to start machine to cut, remove,

convey material and load into dumper placed nearby. May make repairs to equipment.

**8332.16 Grader Operator; Road Grader**

Operates power-driven machine fitted with adjustable steel blades to level ground by pushing earth to sides. Checks fuel supply, radiator water and oil level in engine; fixes, at required angle, appropriate steel blade to arm of machine, depending on type of grading; rides in control cab, starts motor, moves levers and adjusts hand-wheels, and regulates height of scrapper blade over area of work; drives machine over centre of roadway, scapping earth and pushing ridges of earth to edge for removal; continues the process repeatedly to level ground to required condition; tilts or changes position of blades for ground to be prepared; cleans, oils and greases machine parts. May attend to minor repairs. May operate special types of grading machines.

**8332.18 Power Shovel Operator; Excavating Shovel Operator**

Operates power-driven shovel to excavate, move and load earth, rock, sand, gravel and other material for earth removing and construction work. Checks fuel and oil level in engine and water in radiator; starts and runs engine to ensure that various levers and controls are in good working order; drives vehicle to work site; operates hand and foot levers to lower and move shovel, fill it with material and swing it over conveyance or dumping location; pulls rope to allow bottom of shovel to open and release material; moves machine forward or backward to facilitate work; makes minor repairs to machine. May maintain power unit. May be designated as **GRAB-BUCKET OPERATOR**, if operates power-driven machine, equipped with hinge-type bucket attachment, for excavating and moving earth, rock or similar materials.

**8332.20 Bucket Wheel Excavator Operator**

Operates power-driven machine equipped with loading and cutting boom bearing rotating bucket wheel with teeth for excavating and moving earth, rock or similar materials and to discharge contents on to conveyor system. Moves machine under its own power to location of work. Moves hand and foot levers to place jib (boom) with bucket directly above excavating point; manipulates levers and switches on operating

## NATIONAL CLASSIFICATION OF OCCUPATIONS

panel of machine to start or stop excavator; operates lever to raise, dip or swing boom in required direction and position; observes meters and gauges to regulate cutting of earth, to drop open bucket into material, to close and lift filled bucket, to swing jib and place bucket, and to release material on conveyor belt for transporting to processing point. Makes minor repairs to machine.

**8332.22 Trench Digging Machine Operator** operates power-driven machine mounted on wheels or chains and equipped with devices for digging trenches, such as those for sewer, water, drainage, oil and gas pipelines. Starts engine and pulls levers to control movement of caterpillar treads to move machine into position; engages excavating mechanism and moves hand levers to start or stop digging equipment, and to raise or lower it for correct depth of trench; makes minor repairs to machine. May set up line along which machine is guided.

**8332.24 Dragline Operator** operates power-driven machine equipped with dragline bucket for excavating and moving earth, rock, gravel or similar materials. Checks fuel and oil level in engine and water in radiator; starts and runs engine to test and ensure good performance of all components, moves machine under its own power to location of work; moves hand and foot levers to place jib (boom) with bucket above excavation point, lower bucket on desired spot, drag it towards machine and fill it with material, place bucket over unloading point, tilt bucket, and release material. Makes necessary repairs to machine, and follows proper operating and safety conditions.

**8332.26 Dredger Operator** Operates power-driven equipment mounted on dredge for excavating rock or removing silt from navigation channel to enable seagoing vessels to enter and leave harbour. Directs and supervises crew in placing dredge in position for excavating; starts and stops engines for operating excavating equipment; watches tide gauge and adjusts excavating mechanism to work uniformly; operates ladder excavating equipment, by manipulating levers and hand-wheels to raise or lower jib (boom) equipped with endless chain of steel buckets, and observing

contents of buckets to ascertain type of material being excavated; operates hydraulic excavating equipment by pushing or pulling levers to raise or lower frame on which suction pipe and cutter head are mounted, and by starting and stopping rotation of cutter head; observes vacuum and pressure gauges to determine whether sand or water is being raised; operates dipper or hinged bucket excavating equipment by manipulating hand and foot levers to raise or lower dipper or buckets into water, and by adjusting position of jib for loading or unloading dipper or bucket. May change position of dredge by drawing in or letting out anchor cables. May make repairs to equipment. May be designated according to type of excavating equipment on dredge.

**8332.28 Boom Driver** Signals and assists Dredger Operator for correct lowering and raising of dredger dipper arm to remove silt or rocks from navigation channel and port mouth. Operates hand and foot levers to raise or lower dipper or buckets into and out of water, and to adjust position of jib for loading or unloading dipper or bucket; ensures firm pushing of dipper arm in seabed by observing gauges; operates controls to open bucket for dumping dredged material at proper place, signalling Dredger Operator to move dredge.

**8332.30 Pile Driver; Jack Hammer Operator** operates power-driven or manually operated machine equipped with pneumatic, steam or drop-hammer for driving wooden, concrete or steel piles into dry ground, or water-bed for construction work. Moves hand and foot levers to move machine into position for driving piles; hoists pile and lowers it into position for driving; ensures that all drag lines and cables are in good condition, and that power or drop-hammer tied to lift pile tube securely, manipulates controls to operate hammer; makes adjustment on hoisting engine, repairs and maintaining machine. May operate air-compressor when using pneumatic power hammer. May direct or assist other workers in setting up pile-driver leads and machinery. May be designated according to equipment used, as **COMPRESSED-AIR PILE DRIVER; DIESEL-PILE-DRIVER/OPERATOR; ELECTRIC-PILE-DRIVER/OPERATOR; POWER**

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**HAMMER-PILE DRIVER OPERATOR; STEAM-PILE-DRIVER OPERATOR**, or according to kind of piles driven as **SHEET-PILE-DRIVER OPERATOR; WOOD-PILE-DRIVER OPERATOR**.

**8332.32 Dumper Operator; Dump Truck Driver** operates power-driven motor truck, dumping unit vehicle, or caterpillar vehicle with dumper at its rear for transporting loose material, such as sand, gravel, crushed rock, or coal. Drives loaded truck to dumping site and manipulates levers inside cab which control dumping mechanism, or turns hand crank on side of truck to raise truck body to dump load. Moves truck forward and backward to loosen and dump material adhering to side and floor of body. May operate mechanical loading equipment. May clean and lubricate vehicle and conduct running repairs.

**8332.34 Scoop Truck Operator** operates truck equipped with tilting scoop attachment to load and move loose materials, such as sand, fertilizer, etc., in warehouse or other establishment. Starts truck and moves lever to lower scoop; drives truck forward to push scoop into heap of material to be moved; fills scoop, raises it, and drives truck forward until scoop is over storage bin or dumping location; moves lever to tilt scoop forward and empty its contents; repeats operation to move required quantity of material. May operate truck with drop-bottom scoop to load, remove and discharge loose material by opening and closing bottom. May clean and lubricate vehicle. May conduct running repairs to vehicle.

**8332.36 Tippler Machine Operator** operates power-driven tipping machine to tip open wagon for unloading coal or other materials from it. Observes loaded wagon pushed into position to platform of tipping machine; ensures fastening of wagon securely to platform with chain or other contrivance to avoid derailment; manipulates levers and switches on tippler machine to tip wagon to empty contents or load conveyor or other tank and bring back wagon to position. Repeats process with other loaded wagons.

**8332.45 Conveyor Operator** operates power-driven endless chain or conveyor belt at constant speed to transport material

continuously to required place. Starts and stops conveyor by manipulating motor switches and clutch levers; adjusts movement of conveyor at required speed; regulates flow of material according to instructions or knowledge of process by switching conveyors at interjection points, opening and closing chute slide, and adjusting conveyor scales and cut-offs to deposit desired amounts of materials at process points; maintains constant surveillance of conveyor operations to prevent break-downs; ensures pulleys, rollers and other mechanism does not get jammed or heated. Oils and tightens conveyor parts and joints; makes repairs to conveyor belt and driving mechanism. May transfer material from one conveyor to another by manipulating levers. May be designated as **BUCKET-CONVEYOR OPERATOR**, if tends bucket-type conveyors used to convey crushed rock, lime or other loose materials.

**8332.50 Spreader Operator** Operates power-driven machine equipped with receiver and spreader boom to receive earth or other material from main conveyor and spread it at specified site. Starts and stops machine; manipulates levers to raise, dip and swing spreader boom in desired position; moves machine under its own power to specified location and operates lever to swing boom and spread material. Makes minor repairs to machine.

**8332.55 Road Roller Driver** drives steam or diesel road roller to consolidate and level road, pavement or other surface to desired compact and smoothness. Checks fuel, oil and water supply in engine; starts engine and drives roller backward and forward over surface wheel; repeats operation over various layers of materials used in making roads or similar works of construction, until desired compactness or smoothness has been obtained. Oils and greases machine and makes minor repairs.

**8332.60 Bitumen Mixing Machine Operator; Coal-Tar Mixing Machine Operator** operates mobile power-driven bitumen or coal tar mixing machine to mix bitumen or coal tar with gravel for paving roadway, airstrip under construction or repair, or for coating roofs to make them water-proof. Starts and regulates fires under



## NATIONAL CLASSIFICATION OF OCCUPATIONS

boiler or power unit, asphalt heating kettles, and aggregate drying drum; starts and stops various units by manipulating hand levers. Ensures aggregate and bitumen are at proper temperature, by observing heat recording device; manipulates levers on pumps which supply asphalt to kettles or mixing box; obtains test reports or makes own tests to ensure that mixer conforms to specifications. Oils and greases machine. May make minor repairs to machine.

**8332.65 Sand Blast Operator, Construction** directs blast of sand compressed air from nozzle against stone, brick structure, or other hard surface to clean dirt, grease, etc. prior to laying of cement concrete, plastering, etc. Examines surface for sand blasting; fills sand container with sifted sand; connects compressed-air hose to sand container and nozzle and adjusts pressure valve; wears heavy gloves to protect hands, and helmet or hood as protection against breathing sand-laden air and to protect eyes; holds nozzle at proper distance from object and releases trigger finger of nozzle to blow sand against surface of object; cleans and prepares surface for further processing.

**8332.90 Earth Moving and Related Plant Operators, Other** include workers who operate and monitor machines to excavate, grade, level and compact earth or similar materials and lay surfaces of asphalt and concrete not elsewhere classified.

### 8333 CRANE, HOIST AND RELATED PLANT OPERATORS

Crane, hoist and related plant operators operate and monitor cranes and other hoisting equipment.

**8333.10 Driver, Steam Crane** Operates steam-driven crane for lifting and moving heavy objects. Operates crane mounted on rail car by engaging clutch, manipulating throttle and pressing brakes to move crane on track, and to stop it. Ensures proper firing of boiler and maintains required steam pressure. Manipulates clutches, throttles, brakes and control valves to rotate crane on its car to raise and lower crane boom, or to raise or lower load line and anything attached to it. Follows signals of workers to

hoist, slow, lower or unload heavy objects and materials in desired position. Ensures that lifting tackle and other parts of equipment are in perfect condition and maximum lifting capacity of load not exceeded. Cleans boilers periodically and attends to minor repairs or equipment. May operate steam-driven winches to lift heavy objects.

**8333.12 Crane Operator, Diesel/ Electric** operates diesel-electric powered (Tourna) crane mounted on pneumatic wheels to lift, carry and lower heavy loads from one place to another. Starts engine and drives vehicle to work site. Manipulates controls to position crane, crane job (boom) and lifting tackle so that load can be attached. Raises, moves and places load in required position following signals from slinger or helpers. Ensures proper operating and safety conditions as guided by signals from other workers. Lubricates moving parts, tightens nuts and bolts and performs other servicing tasks to keep equipment in good working order. May attend to minor running repairs.

**8333.14 Crane Operator, Pneumatic; E.M.E. Operator, Cranes** Operates air lock system crane (Terra-Cobra, Lima) run by diesel power and mounted on pneumatic wheels, to lift, carry and lower heavy objects from one place to another. Checks oil, water, etc.; starts engine and drives crane to work site, using hand gears and levers. Starts crane motor and manipulates controls to open and close valves to maintain correct supply of air to equipment by observing pressure, temperature and other gauges and to position crane, crane jib (boom) and lifting tackle so that load can be attached; raises, moves, lowers and places heavy load in required position following signals from helpers, ensuring proper operating and safety conditions. Cleans and oils equipment and performs other servicing tasks to keep equipment in running order. May make minor repairs.

**8333.16 Crane Operator, Hydraulic** operates (Zambo) crane mounted on pneumatic wheels and driven by hydraulic power to lift, carry and lower heavy objects from one place to another. Checks jib and cables for security and serviceability; starts crane motor; operates levers controlling

## NATIONAL CLASSIFICATION OF OCCUPATIONS

valves to raise or lower hook for loading or unloading of object. Ensures that load or object is hooked securely to lifting tackle by workers or slinger. Manipulates hand levers to raise and move load to required level and unload object in desired position. Operates crane in accordance with signals from other workers, observing safety conditions while loading and unloading.

**8333.18 Mobile Crane Operator; Tractor Crane Operator; Crawler Crane Operator; Truck Crane Operator** operates diesel or petrol-driven mobile crane, mounted on caterpillar tracks or truck chassis, to lift, carry and lower heavy objects in any direction. Starts engine and drives crane to work site; starts crane motor and manipulates controls to position crane, crane jib (boom) and lifting tackle to attach or detach load; raises, moves and places load in required position. May direct helper to drive crane into position. May operate a crane fitted with mechanical grab attached to lifting tackle.

**8333.20 Crane Operator Gantry; Gantry Crane Operator** Operates electrically - driven high capacity crane mounted on gantry steel tower structure, supported by wheels to run on track laid along ground, to lift, move and lower heavy objects from ground to heights and vice versa. Switches on power supply; moves electrical control levers and brake pedals to run towers along their tracks, to run hoisting trolley (rack) across bridge, and to raise or lower load line and anything attached to it following signals from slinger on ground, observing safety conditions. May be designated according to type of work performed or type of materials moved.

**8333.22 Overhead Crane Operator; Bridge Crane Operator** operates electrically-driven crane running on overhead rails laid on metal bridge to lift, move and lower heavy objects from one place to another. Switches on power supply; takes position in overhead cabin and signals ground crew to move away from crane; manipulates levers and controls to check and assure bridge hoist, lifting tackle etc., are free from mechanical jamming and in working order; operates controls to move bridge along rails and lifting equipment

along bridge tackle for loads to be attached; follows signals from ground crew to raise, move and lower load in desired position observing proper operating and safety conditions. Shuts down power supply on completion of work. May undertake minor repairs to crane.

**8333.24 Derrick Crane Driver** operates electrically-driven derrick crane consisting of movable jib (boom) which can be raised or lowered or turned full circle or moved forward and backwards to lift, move and lower heavy objects from one place to another. Checks jib and cables for security and serviceability; switches on power supply; takes position in overhead cabin and starts crane motor; operates controls to swing, raise or lower jib and to place lifting tackle for load to be attached. Manipulates controls to lift load attached to movable arm (jib) by ground crew; raises, moves and lowers load to desired position following signals from workers on ground and observing proper operating and safety conditions. Instructs and supervises cleaning, greasing and oiling of machinery parts. May attend to minor repairs.

**8333.28 Derrick Crane Operator, Magnetic** operates electric-powered derrick crane to magnetically lift and move ingots or heavy iron balls and to break iron balls by dropping. Switches on power supply and starts crane motor; manipulates levers to position derrick jib, lower magnetised slings to touch cracker iron balls, lift and move jib with sling, lower load and cut off magnet to drop cracker at desired position; operates crane in accordance with signals from ground crew. Cleans, greases and oils moving parts of crane. May undertake minor repairs to machinery.

**8333.30 Crane Driver, Hammer-Head** operates power-driven hammer-head crane consisting of fixed jib, with lifting equipment attached to trolley that can be moved on rails along jib, forward or backward, as necessary; jib itself being capable of rotating full circle in horizontal plane. Switches on power supply; checks jib and cables for security and serviceability; operates controls to swing, raise or lower jib and to place lifting tackle for load to be attached; raises, moves and lowers load to

## NATIONAL CLASSIFICATION OF OCCUPATIONS

desired position; operates crane observing signals from workers on ground to obtain position of jib and lifting hook. Instructs and supervises helpers in cleaning, greasing and oiling machinery.

**8333.32 Winchman; Winch Operator** operates power-driven winch (hauling or lifting device, consisting essentially of a cable, a hand or power-driven drum) to lift and lower load, bend pipes, etc. or to hoist and lower dredging pipes, grabs etc., on dredges. Ensures that cable, winch drum and winch brake are in good working order. Threads cable through pulley wheels and introduces additional pulley wheels in cable linkage, if necessary; connects end of cable to object to be moved, or directs helpers to do so; starts engine of winch, or turns winch handle, to raise or pull object into position, adjusting speed of pulling and applying brake as necessary. May control winch in accordance with signals by other workers. May attend to minor repairs and tend cable, ropes, pulley, and lifting tackle. May operate winches to draw heavy cargoes or boats to shore. May also work on manually operated winches. May be designated according to power used, such as **WINCH DRIVER, PNEUMATIC; WINCH DRIVER, ELECTRICAL.**

**8333.35 Hoist Operator; Hoist Operator, Construction** operates hoisting equipment to raise or lower power-controlled cage, platform or truck carrying men and materials at construction site. Ensures that cables, drums, and other hoisting equipment are in perfect condition; loads or oversees loading of cage, platform or other lifting tackle connected to hoist, and starts motor; moves levers to raise or lower load to required point; moves lifting tackle to fresh position, when unloading completed. May raise or lower hoist in response to bell or other signals by workers. May work on surface or underground. May attend to minor repairs. May operate electric, steam or other type of hoist.

**8333.38 Bridge Opening Operator** operates steam, hydraulic or electric devices to control and closing of bridge for passage of water or road traffic. Watches passage of traffic and opens and closes bridge manually or by manipulating gears, levers, etc. as

desired, ensuring safety of passing traffic by blowing horns or giving other signals, if necessary; operates light or semaphore signals to indicate whether bridge is open or closed. Keeps bridge equipment in good working order. May check gate pass for men and material. May make minor repairs to machinery.

**8333.40 Winding Engineman; Winding Engine Driver; Hoist Operator, Mine** operates steam, diesel or electric-driven equipment to raise or lower cage or skip with men or materials through vertical or inclined mine shaft according to signal from surface or underground workers. Starts engine and undertakes trial run of equipment to check and ensure that component parts of engine, cable, etc. are in good working order; manipulates controls to raise or lower cage skip in response to bell or other signals given by workers at top of mine shaft or below surface; stops hoist when dial indicator shows that cage or skip has reached required level. May attend to minor repairs.

**8333.50 Haulage Engine Driver; Haulage Attendant** Operates steam, diesel, electric or compressed air drive hauling device to lift or lower full or empty tubs in collieries or mines. Ensures that cable, winch brake etc. are in good working order; starts engine in response to signals to raise or lower cars or tubs along haulage track, as required, regulating speed; stops hauling device according to signals, readings, in indicator and drum marks. May attend to minor repairs.

**8333.60 Crane and Hoist Operators, Other;** include crane and hoist operator, not elsewhere classified such as:

**Monocrane Operator,** if operates electrically powered monocrane fitted with fixed jib, and which turns to full circle to lift, raise and lower heavy loads from one place to another.

**Crane Operator, Portable,** if operates tractor equipped with hoist to move designated loads from point to point in shipyard.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**Skip-hoist Operator**, if tends hoist to lift building materials to upper levels of structures undergoing construction.

**8333.65 Aerial Ropeway Operator; Attendant Aerial Ropeway** Operates endless ropeway to transport passengers from one place to another such as from pithed or refinery across river, hill tops etc. Checks that buckets and cages are securely clamped to rope, pulley runs freely and rope is in working order; pulls levers to position cages/buckets on ground or platform for boarding or pushes button to off load, or observes signal panel and listens for malfunction of automatic off loading equipment; Communicates telephonically or signals by buzzer receiving point, readiness of load to be conveyed; pushes buttons to start reel and winding cable causing cages/buckets to move between boarding and off loading area; maintains desired distance between each cage in ropeway by manipulating mechanical retarder to prevent collision with one another; observes movement of rope and operates machine to regulate it. Switches off ropeway and applies brakes on receiving signal from load receiving end. May maintain record of rounds of passengers transported. May attend to running repairs, lubrication etc. of plant and equipment.

**8333.70 Liftman; Lift Operator** operates electric lift to raise or lower cage, carrying passengers and goods from one floor to another in residential, office, hotel, hospital, commercial or industrial building according to bell or buzzer signals. Opens outer gate of lift entrance and inner gate of lift cage by turning handle or by electric switches to permit men and goods inside carrier cage, closes both gates manually or by electrical switches; presses electric push button of desired floor number as indicated in panel to move cage carrying men or material upward or downward as required. Stops lift at required floor by operating switches, opens double gates of lift for passengers and goods to move out and move in. Observes bell or buzzer sound to operate lift to called floor to take men and material. Ensures that lift is not loaded over authorised capacity. Reports to superior malfunctioning of lift when detected. May operate automatic lifts which

by push button action closes gates, travels and stops at required floor, automatically.

**8333.90 Crane, Hoist and Related Plant Operators, Other** include operators who operate and monitor cranes and other hoisting equipment not elsewhere classified.

### 8334 LIFTING TRUCK OPERATORS

Lifting truck operators drive, operate and monitor lifting truck or similar vehicle to transport, lift and stack pallets with goods.

**8334.10 Lift Truck Operator** Operates power-driven truck fitted with adjustable lifting platform to load, transport or stack merchandise and other material in warehouse, storage yard, factory, etc. Drives truck to location of load; positions truck near load; moves levers to place platform under load to raise it; manipulates levers to raise platform carrying load sufficiently above ground and drives truck to site of unloading or stacking; unloads and stacks material by operating truck platform. May tow hand trucks. May operate manually operated vehicle. May attend to minor running repairs, and clean and lubricate parts of vehicle.

**8334.20 Fork Lift Truck Operator** Operates power-driven truck fitted with lifting fork to transport or stack merchandise and other material in warehouse, storage yard, factory, railway station or other similar establishments. Drives truck to location of load; positions truck near load and moves levers to place fork lift below load and raise; drives position; unloads and stacks material by operating lifting fork. May carry out routine servicing of truck.

**8334.90 Lifting Truck Operators, Other** include operators who drive, operate and monitor lifting truck or similar vehicle to transport, lift and stack pallets with goods not elsewhere classified.

### 834 SHIPS' DECK CREWS AND RELATED WORKERS

Ships' deck crews and related workers carry out deck duties on board ship and similar duties on board other water borne craft.

## NATIONAL CLASSIFICATION OF OCCUPATIONS

**8340 SHIPS' DECK CREWS AND RELATED WORKERS**

Ships' deck crews and related workers carry out deck duties on board ship and similar duties on board other water borne craft.

**8340.10 Serang, Deck, Boatswin, Deck**

Controls and supervises work of deck crew. Receives orders from Chief Officer, Ship, allocates work to Tindals and Lascars and supervises their iron and wood work overhauling, cargo and life saving gear, and other regular and emergency duties are carried out efficiently by crew. Prepares anchor to let go when vessel arrives in port, under order of Chief Officer, arranges cargo derricks and adjust ship's position on wharves. Maintains discipline among deck crew.

**8340.15 Tindal, Deck** Controls deck crew and ensures that deck services such as cleaning, scraping, painting, wire and rope splicing, canvas stitching etc, are efficiently carried out. Supervises taking of, sounding of tanks and bridges by cassabs. Supervises mooring of ships to buoys and wharfs and gives necessary instructions to Lascars for proper mooring. Maintains discipline among batch of crew controlled. May attend to work of Lascar, when required, and act as Serang.

**8340.20 Seaconny; Sukhani**

**Quartermaster** Steers vessel following designated course under direction of officer on watch. Keeps watch on bridge during specified hours, taking over handling of helm to keep vessel on its course, and alters course as directed. Cleans bridge and wheel house and carries out such work as arranging signal equipment, hoisting flags and signals cleaning, lights etc. Guards ship's gangway in port to prevent entrance of unauthorised person.

**8340.25 Lascar; Khalasj; Seaman; Deck-**

**hand** Cleans decks and deck equipment by washing decks, chipping points, painting wood and metal fixtures, and splicing wires and cables. Breaks out rigs, overhauls lifeboats, cargo-handling and life-saving gears lowers and raises lifeboats. Takes

depth sounding in unfamiliar or shallow waters and shouts information to bridge. Makes ready derricks and winches for operation. May stow and remove cargo from hold.

**8340.30 Driver, Launch** drives engines of launches and tugs. Checks different parts of engine to ensure that it is in proper working order. Cleans, greases and oils engine parts or gets this done by Oiler Cleaner. Feeds engine with fuel (oil) and ensures that sufficient quantity of oil is stored in canes for use on way. Starts engine by regulating levers or by cranking. Increases or decreases speed or stops engine or reverses direction of boat as per signal given by Serang. Checks and regulates feed of fuel and refills oil, greases etc., as and when needed. Checks temperature of engine and slows down or stops engine if temperature is high. Supervises work of Oilers and Cleaners and diagnoses mechanical defects and undertakes minor repairs. Maintains logbook.

**8340.40 Boat Man** piles boat to carry men and material across waterways, working alone or in groups. Checks boat for leakage or other damage. Moors boat in convenient place for enabling entry of persons or loading of cargo. Ensures that boats capacity is not exceeded and boats balance is maintained on water. Covers cargo if required to protect it from weather. Gets conversant with routes. Unmoors boat, propels and directs it by means of oars, rudder, pole, sails etc. Moors boat on reaching destination for persons to alight and for cargo to be unloaded. May load and unload cargo.

**8340.50 Rudderman** Steers course of boat, large or other water craft by manipulating rudder to desired angles. Examines before start of boat that rudder is in order and is equipped with rope, wire etc; moves rudder from position in line with keel to change vessels' course. May assist Boatman and Oarsman in emergency.

**8340.60 Oarsman** rows boats, barges and other water-crafts using oars, sweeps etc. singly or in groups. Fixes oars in braces on sides of boat; takes position in boat; pulls oars by hand to propel boat; stops pulling of

**NATIONAL CLASSIFICATION OF OCCUPATIONS**

oars at destination or when asked by Boatman; removes oars from braces. May repair broken oars, may assist Rudderman.

**8340.90 Ships' Deck Ratings, Barge Crews and Boatmen, Other** include all other Deck Ratings, and workers engaged in operating ships, barges, boats and like water transports, not elsewhere classified.