

Major group 8:

PLANT AND MACHINE OPERATORS AND ASSEMBLERS

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

The work mainly calls for experience with and an understanding of industrial and agricultural machinery and equipment as well as an ability to cope with machine-paced operations and to adapt to technological innovations. Most occupations in this major group require skills at the second skill level.

This major group consists of the following sub-major groups:

- 81 STATIONARY PLANT AND MACHINE OPERATORS**
- 82 ASSEMBLERS**
- 83 DRIVERS AND MOBILE PLANT OPERATORS**

81 STATIONARY PLANT AND MACHINE OPERATORS

Stationary plant and machine operators operate and monitor industrial plant for mining or for the processing of metal, minerals, glass, ceramics, wood, paper, chemicals, or water-treatment, electrical-power-generator and other purposes, as well as automated or semi-automated assembling processes and industrial robots.

This sub-major group consists of the following minor groups:

- 811 MINING AND MINERAL PROCESSING PLANT OPERATORS**
- 812 PROCESSING PLANT AND METAL FINISHING OPERATORS**
- 813 CHEMICAL AND PHOTOGRAPHIC PRODUCTS PLANT AND MACHINE OPERATORS**
- 814 RUBBER, PLASTIC AND PAPER PRODUCTS MACHINE OPERATORS**
- 815 TEXTILE, FUR AND LEATHER PRODUCTS MACHINE OPERATORS**
- 816 FOOD AND RELATED PRODUCTS MACHINE OPERATORS**
- 817 WOOD PROCESSING AND PAPERMAKING PLANT OPERATORS**
- 818 OTHER STATIONARY PLANT AND MACHINE OPERATORS**
- 819 PRINTING, BINDING AND PAPER PRODUCTS MACHINE OPERATORS**

811 MINING AND MINERAL PROCESSING PLANT OPERATORS

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

8111 MINERS AND QUARRY WORKERS

Miners and quarry workers extract solid minerals from underground or surface mines or quarries, and charge and detonate explosives to fragment or dislodge coal, ores, rocks or other minerals in mines or quarries, or to clear building sites and similar places and operate machinery which cut channels in a mine workplace and perform related tasks.

Tasks include:

- extracting coal, ores and other solid minerals from underground or open cast mine;
- extracting granite, limestone, slate, flint or other kinds of rocks from quarries;
- setting and operating machines which perforate channels or drill blasting holes into the open face of mines or quarries;
- cutting, fitting and installing wood or steel props;
- assembling poles and arches to support walls and roofs of underground work;
- collecting samples of coal or ore for laboratory analysis;
- extracting chalk, clay, gravel or sand from open cast mine;
- ensuring observance of workplace safety procedures and regulations;
- determining location of explosions required and giving instructions on holes to be drilled;
- deciding on force required and placing correct quantity of explosives and preparing blasting site;
- firing blasting-charge in mines or quarries;
- operating and monitoring machinery for perforating channels in a mine or quarry workplace or for drilling blasting holes in mines or quarries;
- operating and monitoring continuous mining machines;
- performing related tasks.

Examples of the occupations classified here:

81111 Miner

81112 Machine operator, drilling/quarry

8112 MINERAL AND STONE PROCESSING PLANT OPERATORS

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

Tasks include:

- operating and monitoring equipment which crushes and break lumps of minerals and stones to required size;
- operating and monitoring washing, separating, leaching, precipitating, filtering, extracting and combining equipment to wash mineral ores in order to remove waste material;
- combining mineral ores with solvents to facilitate further processing;
- separating metal or mineral concentrates from ore or alluvial deposits by thickening, floatation, gravity separation, filtration, or magnetic or electrostatic separation;
- performing related tasks.

Examples of the occupations classified here:

81121 Machine operator, crushing/coal

81122 Machine operator, milling/stone

81123 Worker, minerals floatation

81124 Keeper, jig

8113 WELL DRILLERS AND BORERS AND RELATED WORKERS

Well drillers, borers and related workers assemble and operate machinery which cut channels in a mine workface and perform related tasks in the sinking and operation of wells.

Tasks include:

- preparing and operating derrick pipe-handling devices and slush pumps;
- operating rotary or percussion-drilling machinery and equipment to drill oil or gas wells;
- cleaning and servicing oil or gas wells and replacing pumping rods, casings and tubings;
- setting up and operating drilling machinery and equipment to drill wells or bores other than obtaining for oil or gas;
- performing related tasks.

Examples of the occupations classified here:

- 81131 Operator, drilling equipment/wells*
- 81132 Operator, pulling equipment/oil and gas wells*
- 81133 Machine operator, boring equipment/well*

8114 CEMENT, STONE AND OTHER MINERAL PRODUCTS MACHINE OPERATORS

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

Tasks include:

- operating and monitoring extrusion, molding, grinding and cutter machines which manufacture and finish various precast concrete and stone products such as flagstones, fencing posts, moulded pipe sections and trench liners, walling and partition slabs, building components, cable conduits, fume and dust extraction conduits;
- operating and monitoring machines which mix sand, gravel, cement and water to make concrete;
- performing related tasks.

Examples of the occupations classified here:

- 81141 Machine operator, cast concrete products*
- 81142 Machine operator, asbestos-cement product*
- 81143 Machine operator, terrazzo tile*

812 METAL PROCESSING AND FINISHING PLANT OPERATORS

Metal processing and finishing plant operators operate and monitor ore smelting, metal converting and refining furnaces, metal rolling mills, metal heat treating or metal extrusion plant.

8121 METAL PROCESSING PLANT OPERATORS

Metal processing plant operators operate and monitor ore smelting, metal converting and refining furnaces, metal rolling mills, metal heat treating or metal extrusion plant.

Tasks include:

- operating and monitoring blast-furnaces to smelt ores for the production of ferrous or non-ferrous metals; to convert or refine pig-iron or scrap-metal to produce steel;
- operating and monitoring furnaces to convert or refine melt ferrous and non-ferrous metals for casting;
- operating and monitoring furnaces to reheat stock metal forms prior to forging, power-pressing, rolling and further processing;
- operating and monitoring rolling mills to shape hot or cold steel into shapes for further processing, or into final shapes;
- operating and monitoring rolling mills to reduce or form hot or cold non-ferrous metal to specified shapes, such as plate, sheet or foil;
- pouring molten metal into moulds and operating and monitoring casting machines;
- operating continuous mills by inserting hot steel slabs through a series of rolls (stands) to produce finished plates or sheets in one continuous operation;
- operating rolling mills to make or form hot or cold non-ferrous metal into plate, sheet, foil, wire or rod of specified dimensions;
- manipulating rolling mills control devices according to signals from rollers;
- operating and monitoring furnaces which heat and cool metal objects to relieve internal stresses, restore ductility and refine grain structure; operating furnaces which harden steel objects;
- operating and monitoring plant which imparts a hard skin and tough, ductile core to steel objects by treating them with chemicals, heating and quench hardening or cooling them;
- operating and monitoring furnaces which reheat hardened steel objects to relieve stresses and to impart toughness;
- operating and monitoring wire-drawing machines;
- operating and monitoring the machine to withdraw seamless metal tube;
- operating and monitoring extrusion press machines to make rods, bars and seamless tubing from metal;
- performing related tasks.

Examples of the occupations classified here:

- 81211 Converter blowing operator, steel converting**
- 81212 Continuous-mill roller, steel/cold-roller, steel**
- 81213 Furnace-operator, smelting/metal (blast-furnace)**
- 81214 Machine operator casting metal**
- 81215 Annealer, metal**
- 81216 Drawer, seamless pipe and tube**

8122 METAL FINISHING, PLATING AND COATING MACHINE OPERATORS

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

Tasks include:

- operating and monitoring equipment which cleans metal compounds in preparation for electroplating, galvanising, enamelling or similar processes;
- operating and monitoring electroplating equipment;
- operating and monitoring hot-dip equipment used to coat iron and steel products;
- operating and monitoring machines which automatically coat wire with non-ferrous metal;
- operating and monitoring equipment used to spray molten metal or other substances on metal products to provide a protective or decorative coating or to build up worn-out or damaged surfaces;

- operating and monitoring equipment to oxidise metal surfaces to decorative finishes by chemical process;
- operating sandblasting equipment to clean and smoothen surfaces of metal parts;
- operating machines to semi-finish the surface of cast metal compounds;
- operating and monitoring equipment used to impart a rust-resistant finishing to metal compounds by treating them with chemicals and heating them;
- performing related tasks.

Examples of the occupations classified here:

- 81221 Electroplater**
- 81222 Machine operator, dipping/metal**
- 81223 Galvaniser**
- 81224 Machine operator, sandblaster equipment**
- 81225 Casting finisher**
- 81226 Machine operator, spraying/metal**
- 81227 Oxidizer**
- 81228 Operator, moulding**

813 CHEMICAL AND PHOTOGRAPHIC PRODUCTS PLANT AND MACHINE OPERATORS

Chemical and photographic products plant and machine operators operate and monitor machines which processing a variety of chemicals and other ingredients to produce pharmaceuticals, toiletries, explosives and photographic or other chemical products.

8131 CHEMICAL PRODUCTS PLANT AND MACHINE OPERATORS

Chemical products plant and machine operators monitor and operate units and machinery to blend, mix, process and package a wide range of chemical products.

Tasks include:

- setting up, starting, controlling, adjusting and stopping machines and plant;
- monitoring reaction processes and transferring products in compliance with safety procedures;
- monitoring meters, gauges and electronic instrumentation for one or more chemical compounds;
- monitoring formulation units, such as mixers, kettles, blenders, dryers, tableting, encapsulation, granulation and coating machines;
- measuring, weighing and loading chemical ingredients following formulation cards;
- taking samples and performing routine chemical and physical tests of products and recording production data;
- cleaning and performing minor repairs to machines and plant.

Examples of the occupations classified here:

- 81311 Compounder, match/chemical and related processes**
- 81312 Cement furnaceman**
- 81313 Machine operator, sieving/chemical and related processes**
- 81314 Enameller, chemical**
- 81315 Operator, treater/radioactive waste**

81316 Machine operator, pharmaceutical products

81317 Machine operator, ammunition products

8132 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 makes prints.

Tasks include:

- operating and monitoring equipment which makes photographic film and paper;
- operating, monitoring and testing photographic processing and printing equipment, and maintaining operational standards;
- preparing exposed film for different processing batches in dark rooms and dark chambers;
- inspecting images, films, prints and adjusting settings on print-making equipment to produce required colour, brightness, contrast, number, size and type of prints;
- adjusting settings and running automatic processing film equipment;
- operating equipment to transfer film to video tape or other electronic media;
- performing photographic processing related tasks;
- operating automatic equipment (in retail shops) to develop colour negatives, prints and slides.

Examples of the occupations classified here:

81321 Assistant, scanning and filming

81322 Sub assistant, film laboratory C17

81323 Machine operator, film paper production

81324 Technician, audio-visual N17

81325 Operator, camera offset/platemaker N17

81326 Assistant operator, camera N11

81327 Operator, audio-visual aids

81328 Photo finisher

814 RUBBER, PLASTIC AND PAPER 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 from natural and synthetic rubber and plastics.

8141 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.

Tasks include:

- operating and monitoring machines which knead, mix and blend rubber and rubber compounds for further processing;
- operating and monitoring machines which produce sheets of rubber or rubberized fabric by a rolling process;

- operating and monitoring machines which extrude compounded rubber or shape vulcanized rubber by moulding;
- operating and monitoring machines which build up tyres according to the form, vulcanize tyres and mould or rebuild used tyres;
- operating and monitoring machines which manufacture rubber products such as hoses, air-bags, rubber foam for cushions and mattresses, rubber stamps, etc;
- performing related tasks.

Examples of the occupations classified here:

- 81411** *Attendant, mill/rubber*
- 81412** *Machine operator, extruding/rubber*
- 81413** *Press-operator, moulding/rubber*
- 81414** *Machine operator, calender/rubber*
- 81415** *Machine operator, cutting/rubber*
- 81416** *Machine operator, tyre production*
- 81417** *Machine operator, rubber stamp production*

8142 PLASTICS 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.

Tasks include:

- operating and monitoring machines which knead, mix and blend compounds to obtain plastic materials;
- operating and monitoring machines which shape plastic materials by moulding, extrusion, cutting and other means;
- operating and monitoring machines which laminate plastics and plastic-impregnated materials;
- operating and monitoring machines which compress plastics powder into pellets;
- operating and monitoring machines which emboss designs on plastic sheets;
- operating and monitoring machines which make plastic products such as domestic articles, moulded footwear, toys and industrial accessories;
- performing related tasks;
- supervising other workers.

Examples of the occupations classified here:

- 81421** *Machine operator, mixing/plastics*
- 81422** *Press-machine operator, laminating/plastics*
- 81423** *Machine operator extruding/plastics*
- 81424** *Machine operator, injection moulding/plastics*
- 81425** *Machine operator, compression moulding/plastics*
- 81426** *Machine operator, vacuum plastic-forming*
- 81427** *Machine operator, embossing/plastics*
- 81428** *Machine operator, plastic production*

8143 PAPER PRODUCTS MACHINE OPERATORS

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

Tasks include:

- operating machines which sealed paper to cardboard, cut it to the required length or cut and crease cardboard or paperboard to form box blanks;
- operating pressing machines which form drinking cups or other containers from paper, paperboard or cardboard;
- operating machines which cut, fold and seal paper to make envelopes, paper straws and paper bags, or which form bags from other materials;
- operating machines which make joss paper and other ceremonial paper products used in praying and other religious activities;
- performing related tasks.

Examples of the occupations classified here:

81431 *Machine operator, carton and paper box production*

81432 *Machine operator, envelope & paper bag production*

81433 *Machine operator, straw production*

81434 *Machine operator, joss paper production*

81435 *Machine operator, cardboard products*

815 **TEXTILE, FUR AND LEATHER PRODUCTS MACHINE OPERATORS**

Textile, fur and leather products machine operators operate machines which spin and wind thread, weave fabrics, sew or embroider garments, or treat textile products.

8151 **FIBRE PREPARING, SPINNING AND WINDING MACHINE OPERATORS**

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

Tasks include:

- operating machines which combine textile fibres into uniform blends;
- operating machines which clean and fluff textile fibres, transform them into sliver, comb them into sliver for first drawing, combine slivers into sliver lap or sliver laps into ribbon lap, combine several slivers into one attenuated strand of regular quality and weight;
- operating machines which transform sliver into roving;
- operating machines which spin thread and yarn from roving, wind two or more threads on to bobbin, twist two or more strands of yarn or thread into single heavier and stronger strand, or wind yarn or thread from one package to another;
- performing related tasks.

Examples of the occupations classified here:

81511 *Machine operator, twisting/thread and yarn*

81512 *Machine operator, fibre preparing*

81513 *Machine operator, rope-laying*

81514 *Instructor, spinner*

8152 **WEAVING AND KNITTING MACHINE OPERATORS**

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

Tasks include:

- operating machines used to weave or knit plain or figured cloth, tapestry, lace, carpets, garments, net, hosiery or other fabrics or articles;
- performing related tasks.

Examples of the occupations classified here:

81521 Instructor, weaving

81522 Machine operator, net production

81523 Wrinkle machine operator, textile

81524 Assembler, weaving machine

81525 Machine operator, lace production

8153 SEWING MACHINE OPERATORS

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

Tasks include:

- operating and monitoring standard or specialized single- or multiple-needle sewing machines to make or repair garments, gloves and miscellaneous products in textiles or leather;
- operating and monitoring standard or specialized single- or multiple-needle sewing machines to embroider ornamental designs on textiles or other materials;
- performing related tasks.

Examples of the occupations classified here:

81531 Leather sewer, machine

81532 Crocheter, machine

81533 Embroiderer, machine

8154 BLEACHING, DYEING AND FABRICS CLEANING MACHINE OPERATORS

Bleaching, dyeing and fabrics cleaning machine operators operate machines which bleach, dye, wash and otherwise treat fibres, yarn, or cloth or dry clean textile and leather articles.

Tasks include:

- operating and monitoring machines which treat textile products to make them lighter in colour or to give them a specific colour;
- operating and monitoring machines which wash or dry-clean textile or leather products to remove dirt, impurities, excess chemicals or natural gum;
- operating and monitoring machines which shrink cloth or strengthen the weave by interlocking the fibres;
- operating and monitoring machines which impregnate textiles with chemicals to render them waterproof;
- operating and monitoring machines which treat silk to give it body and weight;
- operating and monitoring machines which press, stretch, or impart lustre, or other type of finishes on textiles;
- performing related tasks.

Examples of the occupations classified here:

- 81541** *Machine operator, bleaching/textile*
- 81542** *Machine operator, dyeing*
- 81543** *Machine operator, starch*
- 81544** *Machine operator, washing and shrinking/textile*
- 81545** *Machine operator, drying/textile*
- 81546** *Machine operator, dry-cleaning*
- 81547** *Operator, calendar/textile*

8155 FUR AND LEATHER PREPARING MACHINE OPERATORS

Fur and leather preparing machine operators operate and monitor various machines which prepare leather.

Tasks include:

- operating and monitoring machines which remove flesh, fat and hair from pelts before cured;
- operating and monitoring machines which treat hides and skins in solutions and apply finishing product to convert them into leather;
- operating and monitoring machines which apply dyes and stains to leather;
- performing related tasks.

Examples of the occupations classified here:

- 81551** *Machine operator, hide processing*
- 81552** *Machine operator, flesing/hide*
- 81553** *Machine operator, dehairing/hide*
- 81554** *Machine operator, tanning*
- 81555** *Machine operator, staining/leather*
- 81556** *Machine operator, cutting/leather*

8156 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.

Tasks include:

- operating and monitoring machines which mark patterns and cut shoe parts;
- operating and monitoring machines which sew shoe parts together, or edge, polish, or apply ornaments and perform finishing tasks;
- operating and monitoring machines which produce luggage, handbags, belts and other accessories, as well as other items such as collars or harnesses;
- performing related tasks.

Examples of the occupations classified here:

- 81561** *Machine operator, footwear production*
- 81562** *Machine operator, footwear production/orthopaedic*
- 81563** *Machine operator, footwear production/sports*

8157 LAUNDRY MACHINE OPERATORS

Laundry machine operators operate laundry, dry cleaning, presser and fabric treatment machines in laundries and dry cleaning establishments.

Tasks include:

- sorting articles for cleaning according to type colour, fabric and cleaning treatment required;
- placing sorted articles into containers and onto conveyor belts to be brought to the repair and cleaning areas;
- checking and removing stains from garments, and replacing buttons and making minor repairs;
- loading and unloading washing machines, driers and extractors;
- adding cleaning agents and starches to laundry articles;
- monitoring laundry articles and ensuring them through cleaning and pressing machine;
- stopping and starting machines to untangle, straighten and remove laundry articles;
- placing laundry articles on shelves and hanging laundry articles for delivery and collection;
- packing laundry articles and preparing orders for delivery.

Examples of the occupations classified here:

- 81571** *Machine operator, dyeing/textile fibres*
- 81572** *Machine operator, laundering*
- 81573** *Machine operator, pressing/laundry*

8159 TEXTILE, FUR AND LEATHER PRODUCTS MACHINE OPERATORS NOT ELSEWHERE CLASSIFIED

This unit group covers textile and leather products machine operators not classified elsewhere in Minor Group 815: Textile Products Machine operators. For instance, here should be classified those who are engaged in operating machines which make hats, mattresses or miscellaneous articles such as braids, lace or other trimmings.

Tasks include:

- operating and monitoring machines which make hats, mattresses or miscellaneous articles such as braids, lace or other trimmings;
- performing related tasks.

Examples of the occupations classified here:

- 81591** *Machine operator, braid production*
- 81592** *Machine operator, cutting/garments*
- 81593** *Machine operator, cutting/textile*
- 81594** *Machine operator, hat making*
- 81595** *Machine operator, pattern-making/leather*
- 81596** *Machine operator, pattern-making/textile*
- 81597** *Machine operator, folding/cloth*

816 FOOD AND RELATED PRODUCTS MACHINE OPERATORS

Food and related products machine operators operate machines which process foodstuffs and manufacture food and related products for human and animal consumption.

8160 FOOD AND RELATED PRODUCTS MACHINE OPERATORS

Food and related products machine operators operate machines which process foodstuffs and manufacture food and related products for human and animal consumption.

Task include:

- operating machines used to slaughter animals and to cut animal carcasses or fish into standard pieces;
- operating machines which pasteurize, homogenize and heat-treat milk and cream;
- operating machinery used for the production of flour, meal and animal feed, and for processing rice;
- operating machines which mix and blend flour with other ingredients to prepare dough for the production of bread, pastries, pasta, noodle and related products;
- operating machines which extract juice from fruits and vegetables by heating or processing;
- operating machines which crush sugar-cane or extracting liquor from sugar-beet;
- operating machines which process barley and other grains used in making distilled and malt liquors, and controlling the fermentation process;
- operating machines which process tobacco in preparation for manufacturing cigarettes, cigar and other tobacco products;
- performing related tasks.

Examples of the occupations classified here:

- 81601** *Machine operator, 'belacan' production*
- 81602** *Attendant, churn/dairy products*
- 81603** *Assistant miller*
- 81604** *Machine operator, bread production*
- 81605** *Attendant, sterilizing oil palm*
- 81606** *Operator, processing and refining/sugar*
- 81607** *Attendant, filtration*
- 81608** *Machine operator, cigar production*

817 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, process wood and their materials into pulp, and make paper from pulp.

8171 PULP AND PAPERMARKING PLANT OPERATORS

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

Tasks include:

- operating and monitoring chipper and grinding machines which makes pulp from logs;
- operating and monitoring digesters which produce pulp from materials such as wood, rags, esparto, straw or scrap-pulp and scrap paper;
- operating and monitoring machines which bleach wood pulp, rags, esparto, straw or scrap- pulp and scrap paper;
- operating and monitoring machines which mix, beat and hydrate pulp and other ingredients to prepare stuff for making paper;
- cutting rags, wastepaper and straws to small pieces with cutting machine for making paper pulp;
- operating valves to charge raw materials into digester;
- operating and monitoring papermaker machines and equipments in which wet pulp formed into paper or in which paper is dried, lubricated, wound, slit, and rewound;
- operating and monitoring lubrication machines used to impart gloss and finishes of paper surface;
- operating and monitoring machinery and equipment used to glaze or impregnate paper with coating mixture;
- performing related tasks.

Examples of the occupations classified here:

- 81711 Operator, digester**
- 81712 Machine operator, chipping**
- 81713 Operator, beater**
- 81714 Machine operator, grinding/wood**
- 81715 Operator, bleach machine**
- 81716 Cutter, paper pulp**
- 81717 Valve operator, paper pulp**
- 81718 Operator, paper-pulp plant**

8172 WOOD PROCESSING PLANT OPERATORS

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

Tasks include:

- operating and monitoring log in-feed and conveyor systems;
- operating and monitoring head saws, resaws and multi blade saws to saw logs, cants, flitches, slabs or wings and remove rough edges from sawn timber;
- operating and monitoring machines which cut veneer;
- operating and monitoring plywood core-laying machines and hot-plate plywood presses;
- operating steam-heated kilns to desiccate wood;
- operating equipment which desiccate wood;
- operating dryer to dry freshly shaped veneer sheets;
- operating machines to clip continuous sheet of veneer to specified width;
- performing related tasks.

Examples of the occupations classified here:

- 81721 Operator, sawmill**
- 81722 Cutter, veneer**
- 81723 Plywood core layer**

- 81724** *Press-operator, plywood*
- 81725** *Machine operator, seasoning/wood*
- 81726** *Machine operator, incising (wood preserving)*
- 81727** *Operator, veneer dryer*
- 81728** *Operator, auto-clipper*

8173 WOOD PRODUCTS MACHINE OPERATORS

Wood products machine operators operate and monitor woodworking machines which perform repetitive works such as sawing, boring, shaping, planning, turning or carving wood.

Tasks include:

- setting and operating one or more previously set up machines for sawing, shaping, boring, planning, turning or carving wood;
- performing related tasks.

Examples of the occupations classified here:

- 81731** *Lathe-operator, woodworking*
- 81732** *Sawyer, precision wood*
- 81733** *Turner, wood (machine)*
- 81734** *Machine operator, wood-wool*
- 81735** *Operator, sander*
- 81736** *Machine operator, carving/wood*
- 81737** *Machine operator, furniture production*
- 81738** *Machine operator, wood products*

818 OTHER STATIONARY PLANT AND MACHINE OPERATORS

Other stationary plant and machine operators operate and monitor 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 or semi-automated assembling processes and industrial robots.

8181 GLASS AND CERAMICS PLANT OPERATORS

Glass and ceramics plant operators operate and monitor kilns, furnaces and other machinery and equipment used in the manufacture of glass, ceramics, porcelain, tiles or bricks. They operate machines to anneal, harden or decorate glass and ceramics.

Tasks include:

- operating and monitoring glass-making furnaces to make glass by melting and fusing pre-mixed ingredients;
- tending hot- or cold-end spray equipment used to coat glassware with surface hardener;
- operating and maintaining machines that press or blow molten glass in moulds to form or shape containers, such as bottles, jars and drinking glasses;
- operating hand press to mould glass into required shape;
- operating drawing kiln to process molten glass into continuous sheet of flat glass;
- operating and monitoring floating-glass production plant;

- operating and maintaining finishing machines to grind, drill, sand, bevel, decorate, wash or polish glass or glass products;
- setting and operating press machines to mould ceramic articles from moist clay;
- operating machines to mix clay with water to knead it into a suitable plastic condition or semi-liquid form for making ceramic products;
- operating and monitoring kilns which bake pottery, porcelain ware and bake bricks and tiles;
- operating and monitoring machines for making glaze or abrasives;
- operating and monitoring machines which extrude molten glass to form fibreglass filaments;
- observing finished products to identify splits, cracks, breaks, colour and other imperfections.

Examples of the occupations classified here:

- 81811** *Machine operator, mixing/clay*
- 81812** *Machine operator, mixing/glass*

8182 STEAM ENGINE AND BOILER OPERATORS

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

Tasks include:

- operating and monitoring coal or oil-fired steam engines or boilers on land and at sea;
- performing related tasks.

Examples of the occupations classified here :

- 81821** *Operator, boiler/ship*
- 81822** *Boilerman*
- 81823** *Fireperson, railway engine*

8183 PACKING, BOTTLING AND LABELLING MACHINE OPERATORS

Packing, bottling and labelling machine operators operate machines which pack, label and, if needed, add revenue stamps to products, packages and containers, or inspect finished products or parts in compliance with manufacturer's standards, finish and appearance.

Tasks include:

- inspecting finished products or parts in compliance with manufacturer's standards, finish and appearance;
- operating machines which wrap and pack various products, including liquid ones, for storage or shipment;
- operating machines which, by gluing or other methods, label products, packages and various containers, or add revenue stamps;
- performing related tasks.

Examples of the occupations classified here:

- 81831** *Operator, carton*
- 81832** *Operator, packing*

8184 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.

Tasks include:

- operating and monitoring glass-making furnaces;
- operating and monitoring glass-annealing furnaces to prevent or remove internal stresses;
- operating and monitoring tempering furnaces to toughen glass;
- operating and monitoring machines which shape glass articles by blowing or pressure-moulding;
- operating and monitoring machines which draw or roll molten glass to a continuous sheet of flat glass;
- operating and monitoring floating-glass production plant;
- operating and monitoring machines which polish and level plate-glass surfaces;
- operating and monitoring machines which make glass rods and tubes from molten glass by drawing or drawing and blowing;
- operating and monitoring kilns which bake pottery and porcelain ware or which fix glazing and decoration by rebaking;
- operating and monitoring kilns which bake bricks and tiles;
- performing related tasks.

Examples of the occupations classified here:

- 81841** *Furnace-operator, glass production*
- 81842** *Furnace-operator, annealing/glass*
- 81843** *Kiln-operator, brick and tile*
- 81844** *Machine operator, pottery and porcelain*
- 81845** *Furnace-operator, tempering/glass*
- 81846** *Machine operator, blowing/glass*
- 81847** *Machine operator, engraving/glass*
- 81848** *Operator, sandblasting equipment/glass*

8189 STATIONARY PLANT AND MACHINE OPERATORS NOT ELSEWHERE CLASSIFIED

Stationary plant and machine operators not elsewhere classified operate and monitor 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 or semi-automated assembling processes and industrial robots.

819 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.

8191 PRINTING MACHINE OPERATORS

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

Tasks include:

- operating and monitoring cylinder, platen, rotary, offset, direct lithographic, rotogravure and wallpaper printing machines;
- performing related tasks.

Examples of the occupations classified here:

- 81911** *Press-operator, printing/cylinder*
- 81912** *Press-operator, printing/offset*
- 81913** *Press-operator, printing/rotary*
- 81914** *Press-operator, printing/rotogravure*
- 81915** *Press-operator, printing/direct lithographic*
- 81916** *Press-operator, printing/wallpaper*

8192 BOOKBINDING MACHINE OPERATORS

Bookbinding machine operators operate machines which bind and emboss books and other publications.

Tasks include:

- operating bookbinding machines;
- operating pressing machines which emboss designs and titles on book covers;
- performing related tasks.

Examples of the occupations classified here:

- 81921** *Machine operator, bookbinding*
- 81922** *Machine operator, embossing/book*

82 ASSEMBLERS

Assemblers operate and monitor industrial machines or assemble products from parts according to strict specifications and procedures.

This sub-major group consists of the following minor groups:

- 821 ASSEMBLERS**
- 822 METAL AND MINERALS PRODUCTS MACHINE OPERATORS**

821 ASSEMBLERS

Assemblers assemble components into products according to specifications.

8211 MECHANICAL MACHINERY ASSEMBLERS

Mechanical machinery assemblers assemble the components or parts of mechanical machinery according to specifications.

Tasks include:

- assembling the components or parts of mechanical machinery, engines and vehicles according to specifications;
- performing related tasks.

Examples of the occupations classified here:

- 82111 Assembler, aircraft**
- 82112 Repairer, bicycle**
- 82113 Assembler, refrigeration and air-conditioning equipment**
- 82114 Assembler, sewing machine**
- 82115 Assembler, earth-moving equipment**
- 82116 Assembler, printing machinery**
- 82117 Assembler, industrial machinery**
- 82118 Assembler, agricultural machinery**

8212 ELECTRICAL AND ELECTRONIC EQUIPMENT ASSEMBLERS

Electrical and electronic equipment assemblers assemble the components or parts of electrical and electronic equipment according to specifications.

Tasks include:

- assembling the components or parts of electrical and electronic equipment according to specifications;
- performing related tasks.

Examples of the occupations classified here:

- 82121 Assembler, electrical equipment**
- 82122 Assembler, electronic equipment**
- 82123 Assembler, semi-conductor**
- 82124 Assembler, battery**
- 82125 Assembler, electric-sign**
- 82126 Assembler, watch**
- 82127 Assembler, hearing aid**
- 82128 Assembler, audio-visual equipment**

8213 LEATHER, METAL, RUBBER AND PLASTIC PRODUCTS ASSEMBLERS

Leather, metal, rubber and plastic products assemblers perform specialized tasks in assembling the leather, metal, rubber or plastic components or parts of various types of products such as toys, sports articles, bicycles, etc., according to specification.

Tasks include:

- assembling the leather, metal, rubber or plastic components or parts of various types of products according to specifications;
- performing related tasks.

Examples of the occupations classified here:

- 82131 Assembler, leather products**

- 82132 Assembler, metal products**
- 82133 Assembler, rubber products**
- 82134 Assembler, plastics products**

8219 ASSEMBLERS NOT ELSEWHERE CLASSIFIED

Assemblers not elsewhere classified in minor group, operate machines which pack, label and, if needed, add revenue stamps to products, packages and containers, or inspect finished products or parts for conformance to manufacturer's standards, finishes and physical appearance.

Tasks include:

- assembling the components or parts made from wood, paperboard, textile or related materials, of various types of products, according to specifications;
- inspecting finished products or parts for conformance to manufacturer's standards, finishes and physical appearance;
- assembling parts of component products which made from of a wide range of materials;
- attaching metal, plastic or other fittings;
- operating machines which wrap and pack various products, including liquid ones, for storage or shipment;
- operating machines which, by gluing or other methods, product labelling, packaging and various containers, or add revenue stamps;
- performing related tasks.

Examples of the occupations classified here:

- 82191 Machine operator, labeling**
- 82192 Machine operator, sealing**
- 82193 Machine operator, filling/container**
- 82194 Machine operator, pelletizing**
- 82195 Operator, merry-go-round**
- 82196 Machine operator, silicon chip production**
- 82197 Operator, sub-assembly manual**
- 82198 Assembler, wood products**

822 METAL AND MINERAL PRODUCTS MACHINE OPERATORS

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

8221 MACHINE-TOOL SETTER-OPERATORS

Machine-tool setter-operators set and operate various machine tools so that can used to work on high power tolerances.

Tasks include:

- setting one or more types of machine tools to produce metal articles in standardised series;
- operating and monitoring particular types of metalworking machines such as lathes, stamping presses, power shears, metal-bending, milling, sizer, boring, drilling, grinding, honing or metal-sawing machines which may be numerically controlled or linked by an automatic- transfer machine;

- performing related tasks.

Examples of the occupations classified here:

- 82211** *Coremaker, machine, foundry*
- 82212** *Setter-operator, lathe*
- 82213** *Setter-operator, shaping machine*
- 82214** *Setter-operator, boring and drilling machine*
- 82215** *Setter-operator, honing machine*
- 82216** *Setter-operator, milling machine*
- 82217** *Setter-operator, planning machine*

83 DRIVERS AND MOBILE PLANT OPERATORS

Drivers and mobile plant operators drive trains and motor vehicles, operate mobile industrial and agricultural machinery and equipment, or execute deck duties on board ship and other water-borne craft.

This sub-major group consists of the following minor groups:

- 831 LOCOMOTIVE ENGINE DRIVERS AND RELATED WORKERS**
- 832 CAR, VAN AND MOTORCYCLE DRIVERS**
- 833 HEAVY TRUCK AND BUS DRIVERS**
- 834 MOBILE PLANT OPERATORS**
- 835 SHIPS DECK CREWS AND RELATED WORKERS**

831 LOCOMOTIVE ENGINE DRIVERS AND RELATED WORKERS

Locomotive engine drivers and related workers drive, or assist in driving, locomotive engines to transport passengers and freight, take charge of and safeguard railway freight trains during runs, control the movement of railway 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.

8311 LOCOMOTIVE ENGINE DRIVERS

Locomotive engine drivers drive, or assist in driving, locomotive engines to transport passengers and freight.

Tasks include:

- driving or assisting in driving a steam, electric or diesel-electric locomotive engine;
- driving an underground or elevated passenger train;
- driving a locomotive to haul carriages underground or on the surface of a mine or quarry;
- watching for track hazards, observing signals and indicator gauges;
- operating communications systems to communicate with train crews and traffic controllers to ensure safe operation and scheduling of trains.

Examples of the occupations classified here:

- 83111** *Driver, locomotive*
- 83112** *Operator, mono-rail*
- 83113** *Driver, mine engine*
- 83114** *Assistant, locomotive driver*

- 83115 Driver, engine (Bukit Bendera Train) R9**
- 83116 Driver/ Operator, mobile harbour crane R3**
- 83117 Driver, Sabah locomotive AA13**

8312 RAILWAY BRAKE, SIGNAL AND SWITCH OPERATORS

Railway brakemen, signallers and shunters take charge of and safeguard railway freight trains during runs, control the movement of railway 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.

Tasks include:

- taking charge of and safeguarding freight train during run;
- controlling flow of railway traffic over section of line by operating signals and switches from control panel or signal box;
- switching and coupling rolling stock in railway yards and sidings in accordance with orders about loading, unloading and make-up of trains;
- making up trains for hauling by locomotive or cable and directing their movement along haulage ways in a mine or quarry;
- checking train systems and equipment such as air conditioning and heating systems, brakes and brake hoses prior to train run.

Examples of the occupations classified here:

- 83121 Braker, railway**
- 83122 Signaller, railway**
- 83123 Shunter, railway**
- 83124 Coupler, railway yard**
- 83124 Yardman**
- 83125 Pointsman, railway**
- 83126 Gateman, railway**

832 CAR, VAN AND MOTORCYCLE DRIVERS

Car, van and motorcycle drivers drive and tend motor cycles, motorized tricycles, cars or vans to transport passengers, materials or goods.

8321 MOTORCYCLE DRIVERS

Motorcycle drivers drive and tend motor cycles or motorized tricycles equipped to transport materials, goods or passengers.

Tasks include:

- driving and tending motor cycle or motorized tricycle to transport materials, goods and passengers;
- observing traffic rules and signals;
- cleaning and washing vehicle as well as performing maintenance and minor repairs;
- keeping a record of journeys;
- delivering messages.

Examples of the occupations classified here:

- 83211** *Motorcyclist*
- 83212** *Rider, despatch*
- 83213** *Driver, auto rickshaw*
- 83214** *Driver, motorized tricycle*

8322 CAR, TAXI AND VAN DRIVERS

Car, taxi and van drivers drive and tend motor cars and vans to transport passengers, mail or goods.

Tasks include:

- driving and tending passenger, vans, cars or taxis;
- driving and tending cars, vans or small trucks to deliver mail or goods;
- assisting passengers with handling of luggage;
- collecting fares, payments for deliveries, or documents certifying deliveries;
- operating telecommunications equipment to report location and availability and follow directions of control centre;
- determining most appropriate route;
- assisting disabled passengers;
- operating equipment to facilitate the loading and unloading of disabled passengers.

Examples of the occupations classified here:

- 83221** *Driver, taxi*
- 83222** *Chauffeur*
- 83223** *Driver, van*
- 83224** *Driver, ambulance*
- 83225** *Car jockey*
- 83226** *Driver, personal*
- 83227** *Driver, car*
- 83228** *Driver R3*

833 HEAVY TRUCK AND BUS DRIVERS

Heavy truck and bus drivers drive and tend heavy trucks, lorries, buses or street tramcars to transport goods, liquids, heavy materials, mail or passengers.

8331 BUS AND TRAM DRIVERS

Bus and tram drivers drive and tend buses or street tramcars to transport passengers, mail or goods.

Tasks include:

- driving and tending motor bus, trolley bus or motor coach to transport local or long-distance passengers, mail or goods;
- driving and tending street tramcar transporting passengers;
- opening and closing doors before or after passengers board or alight;
- assisting passengers with luggage;

- controlling lighting, heating and ventilation on buses and trams;
- observing traffic to ensure safe progress;
- collecting fares or verifying passenger has necessary ticket.

Examples of the occupations classified here:

- 83311** *Driver, bus*
- 83312** *Driver, tram*
- 83313** *Assistant, driver*
- 83314** *Motor coach driver*

8332 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.

Tasks include:

- driving and tending a heavy motor vehicle, such as a lorry with or without trailer or a dump-truck, to transport goods, liquids or heavy materials over short or long distances;
- determining the most appropriate routes;
- ensuring goods are stowed and securely covered, to prevent loss and damage;
- assisting with or carrying out loading or unloading operations, using various lifting or tipping devices;
- carrying out minor maintenance to vehicles, and arranges major maintenance and repairs;
- estimating weights to comply with load limitations, and ensuring the safe distribution of weights.

Examples of the occupations classified here:

- 83321** *Driver, lorry*
- 83322** *Driver, fire-engine*
- 83323** *Driver, dumper*
- 83324** *Driver, truck*
- 83325** *Driver, tanker*
- 83326** *Driver, towing*
- 83327** *Operator, shuffle-car/mine*

834 MOBILE PLANT OPERATORS

Mobile plant operators drive or operate agricultural and other machinery and equipment for handling materials and heavy objects.

8341 MOBILE FARM AND FORESTRY PLANT OPERATORS

Mobile farm and forestry plant operators drive or operate one or more types of motorized, mobile farm or forestry machinery or equipment.

Tasks include:

- driving or operating tractor or self-propelled scaper for ploughing, planting, harvesting, threshing/baling or other special-purpose farm machinery, or similar tractor-drawn equipment;
- driving or operating tractor or self-propelled scaper for clearing, planting, harvesting, timber-carrying or other special-purpose forestry machinery;
- performing related tasks.

Examples of the occupations classified here:

- 83411** *Driver, farm tractor*
- 83412** *Driver, timber carrier*
- 83413** *Driver, winch-truck (logging)*
- 83414** *Operator, harvester (paddy)*

8342 EARTH MOVING AND RELATED PLANT OPERATORS

Earth moving and related plant operators operate machines to excavate, grade, level, smooth and compact earth or similar materials.

Tasks include:

- operating and monitoring excavating machines, equipped with moveable shovel, grab-bucket or dragline bucket, to excavate and move earth, rock, sand, gravel or similar materials;
- operating and monitoring machines for digging trenches for sewers, drainage, water, oil, gas or similar pipelines;
- operating and monitoring machines equipped with concave steel blade to move, distribute and level earth, sand, snow and other materials;
- operating and monitoring equipment to remove sand, gravel and mud from bottom of body of water;
- operating and monitoring machines for hammering wooden, concrete or steel piles into ground;
- operating and monitoring power roller to compact and smooth layers of materials in making roads, pavements and similar work;
- operating and monitoring machines which spread and smooth concrete or bituminous or tar preparations to construct roadways, roads or similar work;
- performing related tasks.

Examples of the occupations classified here:

- 83421** *Operator, backhoe*
- 83422** *Machine operator, trench digging*
- 83423** *Operator, pile-driver*
- 83424** *Driver, ditch backhoe*
- 83425** *Machine operator, road making*
- 83426** *Operator, backhoe dredger*
- 83427** *Operator, tunneling machinery/construction*
- 83428** *Operator, drilling plant*

8343 CRANE, HOIST AND RELATED PLANT OPERATORS

Crane, hoist and related plant operators operate and monitor stationary and mobile cranes and

other hoisting equipment.

Tasks include:

- operating and monitoring stationary or mobile cranes by raising and lowering jibs and booms, to lift, move, position or place equipment and materials;
- operating and monitoring equipment for hoisting, lowering or raising workers and materials on construction sites or in mines;
- operating and monitoring ski-lifts and similar equipment;
- operating and monitoring machinery used to haul ferry or barge with goods, passengers and vehicles across short stretches of water;
- operating and monitoring machinery to open and close bridge for the passage of road and water traffic;
- operating and monitoring cranes equipped with dredging attachments to dredge waterways and other areas;
- operating cranes mounted on boats or barges to lift, move and place equipment and materials;
- performing related tasks.

Examples of the occupations classified here:

- 83431 Operator, crane**
- 83432 Operator, hoist**
- 83433 Operator, winch**
- 83434 Operator, elevator/material handling**
- 83435 Operator, cable car**

8344 LIFTING TRUCK OPERATORS

Lifting-truck operators drive, operate and monitor lifting-truck or similar vehicle to transport, lift and stack pallets with goods.

Tasks include:

- operating and monitoring lifting-truck and similar equipment to load and unload, transport, lift and stack goods and pallets in terminals, harbours, ware-houses, factories and other establishments;
- positioning lifting devices under, over, or around loaded pallets, skids and boxes, and securing material or products to be transported to fixed areas;
- inspecting equipment to identify wear and damage;
- performing routine maintenance on vehicles and equipment;
- keeping records of work undertaken and breakdowns of vehicles.

Examples of the occupations classified here:

- 83441 Operator, truck/fork-lift**
- 83442 Operator, truck/industrial**
- 83443 Operator, truck/lifting**

835 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.

8350 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.

Tasks include:

- standing look-out watches at sea and when entering or leaving harbour or other narrow waters;
- steering ship according to instruction;
- handling ropes and wires, and operates mooring equipment;
- maintaining and, in some cases, operating ship's equipment, cargo gear, rigging, life-saving and fire-fighting appliances;
- performing deck and hull cleaning, scraping, painting and other maintenance duties as required;
- breaking out, rigging and stowing cargo-handling gear, stationary rigging and running gear.

Examples of the occupations classified here:

83501 Helmsman

83502 Assistant mechanic, marine engine / Mechanic, marine engine A1/A11

83503 Sailor

83504 Crew, ferry

83505 Lighterman

83506 Ram controller

83507 Serang A17