
9211 Supervisors, mineral and metal processing

Supervisors, mineral and metal processing, supervise and co-ordinate the activities of workers in the following groups: *Central Control and Process Operators, Mineral and Metal Processing (9231), Machine Operators and Related Workers in Metal and Mineral Products Processing and Manufacturing (941)* and *Labourers in Mineral and Metal Processing (9611)*. They are employed in mineral ore and metal processing plants such as copper, lead and zinc refineries, uranium processing plants, steel mills, aluminum plants, precious metal refineries, cement processing plants, clay, glass and stone processing plants and foundries.

Example titles

blast furnace foreman/woman

brick and tile foreman/woman

cement processing supervisor

coremaking foreman/woman – foundry

die casting supervisor

foreman/woman, lead refining

lime preparation foreman/woman

melting and roasting department supervisor

ore milling supervisor

roll shop operations coach – steel mill

shift co-ordinator, steel mill

supervisor, glass cutters

Main duties

Supervisors, mineral and metal processing, perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers engaged in the following duties: operating single or multi-function mineral and metal processing machinery and equipment; operating mouldmaking and coremaking machines or manually make moulds and cores; operating glass process control, forming and finishing machines; operating concrete, clay and stone forming and finishing machines; and operating cement process control machines and equipment
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Requisition materials and supplies
- Resolve work problems and recommend work measures to improve productivity and product quality
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in metallurgy, sciences or a related field may be required for some occupations in this unit group.
- Several years of experience as a worker in the unit or department being supervised are usually required.

Classified elsewhere

- *Supervisors, mining and quarrying (8221)*
- *Supervisors, other mechanical and metal products manufacturing (9226)*

9212 Supervisors, petroleum, gas and chemical processing and utilities

Supervisors in this unit group supervise and co-ordinate the activities of workers in the following unit groups: *Petroleum, Gas and Chemical Process Operators (9232)*, *Power Engineers and Power Systems Operators (9241)*, *Water and Waste Treatment Plant Operators (9243)*, *Chemical Plant Machine Operators (9421)* and *Labourers in Chemical Products Processing and Utilities (9613)*. They are employed by petroleum and natural gas processing, pipeline and petrochemical companies, chemical and pharmaceutical companies, electric power utilities, water and waste treatment utilities and in a range of other industries and institutions.

Example titles

chemical processing supervisor
foreman/woman, chemical
foreman/woman, cosmetics processing
foreman/woman, natural gas plant
foreman/woman, water purification plant
paint processing foreman/woman
production supervisor, pharmaceuticals

production supervisor, specialty chemicals
steam engineer leader
supervisor, petroleum refining
supervisor, pipeline operation
supervisor, power station
supervisor, sewage treatment plant

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who operate petroleum refineries, chemical plants, water and waste treatment plants and equipment, pipelines, heating plants and power stations and systems
- Identify, investigate, correct and document potential environmental and safety problems
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Provide information for maintenance plans to ensure that maintenance and production objectives are met
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policy
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports and develop and manage operating budget for area of responsibility
- May also supervise, co-ordinate and schedule the activities of trades workers, labourers or other workers.

- Post-secondary education in chemical processing or sciences may be required for some occupations in this unit group.
- Several years of experience as a senior operator in the same company or plant are usually required.
- Some occupations in this unit group may require a specific licence or certification, such as a stationary engineer's licence or refrigeration certification.
- Solid waste, landfill or compost facility operator certification may be required.

Additional information

- There is some mobility between occupations with similar technological or licensing requirements within this group.

Classified elsewhere

- Supervisors of telecommunications workers, power utility electricians and power line workers (in 7202 *Contractors and supervisors, electrical trades and telecommunications occupations*)

Employment requirements

- Completion of secondary school is required.

9213 Supervisors, food, beverage and associated products processing

Supervisors in this unit group supervise and co-ordinate the activities of workers who operate processing and packaging machines, and workers who grade food, beverage and associated products. They are employed in fruit and vegetable processing plants, dairies, flour mills, bakeries, sugar refineries, fish plants, meat plants, breweries and other food, beverage and associated products processing establishments.

Example titles

brewer supervisor	supervisor, bottling
foreman/woman, poultry graders	supervisor, fish processing
HACCP co-ordinator	supervisor, food product testers
packaging supervisor – food and beverage processing	supervisor, meat packing
production supervisor – food and beverage processing	supervisor, tobacco processing
	supervisor, vegetable packing
	team supervisor, flour milling

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who process, package, test and grade food, beverage and associated products
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policy
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports.
- HACCP co-ordinators identify, evaluate, control and prevent hazards at all stages of the food production process.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in microbiology or chemistry may be required for some positions in this group.
- Several years of experience in the food, beverage or associated products processing industry are required.
- Hazard analysis critical control point (HACCP) co-ordinators require HACCP certification and several years of experience in quality assurance of food production.

Classified elsewhere

- *Machine operators and related workers in food, beverage and associated products processing (946)*
- Managers of food, beverage and associated products processing (in 0911 *Manufacturing managers*)
- Supervisors of meat and fish inspectors (in 2222 *Agricultural and fish products inspectors*)

9214 Supervisors, plastic and rubber products manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers who operate processing machines and who fabricate, assemble and inspect rubber or plastic products. They are employed by rubber and plastic products manufacturing companies and in plastic parts divisions of other manufacturing companies.

Example titles

foreman/woman, blow moulding

foreman/woman, calendaring – rubber and plastic manufacturing

foreman/woman, extruding – rubber and plastic manufacturing

supervisor, injection moulding – plastic products manufacturing

supervisor, plastic products manufacturing

supervisor, rubber products manufacturing

supervisor, tire building

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of production workers who operate processing machines and who fabricate, assemble, finish or inspect plastic or rubber parts and products
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in sciences or plastics technology may be required for some positions in this group.
- Several years of experience as a machine operator or an assembler in rubber or plastic products manufacturing is usually required.

Classified elsewhere

- *Labourers in rubber and plastic products manufacturing (9615)*
- *Plastic products assemblers, finishers and inspectors (9535)*
- *Plastics processing machine operators (9422)*
- *Rubber processing machine operators and related workers (9423)*

9215 Supervisors, forest products processing

Supervisors in this unit group supervise and co-ordinate the activities of workers in the following groups: *Pulping, Papermaking and Coating Control Operators (9235)*, *Machine Operators and Related Workers in Pulp and Paper Production and Wood Processing and Manufacturing (943)* and *Labourers in Wood, Pulp and Paper Processing (9614)*. They are employed by pulp and paper companies, paper converting companies, sawmills, planing mills, wood treatment plants, waferboard plants and other wood processing companies.

Example titles

coating room foreman/woman – pulp and paper
foreman/woman, lumber grading – wood
processing
foreman/woman, plywood making
foreman/woman, shingle mill
foreman/woman, waferboard
foreman/woman, wood treating plant

paper machine foreman/woman
paper mill foreman/woman
pulp mill foreman/woman
sawmill foreman/woman
shift operating supervisor – pulp and paper
supervisor, paper converting
tour foreman/woman – pulp and paper

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who operate pulp and paper mills, paper converting mills, sawmills, planing mills, plywood, waferboard and other wood and paper products mills
- Ensure that systems and equipment are operating efficiently and that proper maintenance and repairs are performed
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions and administer the collective agreement
- Prepare production and other reports
- Monitor safety conditions
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is required.
- A college diploma in pulp and paper technology or a related discipline may be required for some pulp and paper supervisor positions.
- Several years of some combination of formal and on-the-job training are provided.

- Several years of experience in the most senior occupation supervised are often required.
- Certificates, such as lumber grading and industrial first aid, and a competency certificate in natural gas may be required.

Additional information

- Mobility is possible between positions employing similar technology or producing similar products.
- Progression to managerial positions is possible with experience.

Classified elsewhere

- *Manufacturing managers (0911)*

9217 Supervisors, textile, fabric, fur and leather products processing and manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers engaged in textile, fabric, fur and leather products processing and manufacturing. They are employed by textile manufacturing companies, tanneries and other manufacturers of fabric, fur and leather products.

Example titles

boot and shoe foreman/woman
canvas products manufacturing foreman/woman
cutting department foreman/woman, fabric
dye room supervisor
embroidery supervisor – fabric products
finishing supervisor – textiles
foreman/woman – textile processing

fur dressing foreman/woman
hat and cap makers foreman/woman
sample room foreman/woman, leather products
sewing machine operators supervisor
stitching department supervisor
supervisor, knitting
tannery foreman/woman

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of production workers who operate machines to process natural, synthetic and hybrid textile fibre, yarn and thread; bleach, dye and finish textiles; operate manufacturing machines to cut, stitch and produce fabric, fur or leather garments and other products; and inspect textiles products
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in textile technology or a related field may be required for some positions in this group.
- Several years of experience as a worker in the unit group being supervised are usually required.
- Experience may be required in a specific process, or with a specific product or type of equipment.

Additional information

- There is some mobility among supervisory positions in this group.
- Progression to managerial positions is possible with experience.

Classified elsewhere

- *Machine operators and related workers in textile, fabric, fur and leather products processing and manufacturing (944)*
- Master dyers and textile colour technologists (in 2211 *Chemical technologists and technicians*)
- *Tailors, dressmakers, furriers and milliners (6342)*
- Technologists and technicians in textile manufacturing (in 2233 *Industrial engineering and manufacturing technologists and technicians*)
- Textile machinery mechanics (in 7311 *Construction millwrights and industrial mechanics*)

9221 Supervisors, motor vehicle assembling

Supervisors in this unit group supervise and co-ordinate the activities of workers in motor vehicle production departments. They are employed in plants which manufacture automobiles, vans and light trucks.

Example titles

area co-ordinator – motor vehicle manufacturing
assembly foreman/woman – motor vehicle manufacturing
foreman/woman – motor vehicle manufacturing
general supervisor, assembly – motor vehicle manufacturing

supervisor, assembly – motor vehicle manufacturing
zone supervisor, assembly – motor vehicle manufacturing

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers in motor vehicle manufacturing production departments such as body shop, chassis, paint, trim and hardware and final assembly
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Train staff in job duties, safety procedures and company policies
- Requisition materials and supplies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in engineering, sciences, business or other related discipline is usually required.
- Several years of experience as a production worker in motor vehicle manufacturing are required.

Additional information

- Progression to managerial positions is possible with experience.

Classified elsewhere

- *Motor vehicle assemblers, inspectors and testers (9522)*
- Supervisors of engine assemblers (in 9226 *Supervisors, other mechanical and metal products manufacturing*)

9222 Supervisors, electronics manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers who assemble, fabricate, test, repair and inspect electronic parts, components and systems. They are employed in electronics manufacturing plants.

Example titles

assembly and testing supervisor – electronic equipment manufacturing
final assembly and testing foreman/woman – electronic equipment manufacturing
foreman/woman, electronic assembly
foreman/woman, printed circuit board fabrication

production supervisor – electronics manufacturing supervisor, communications equipment assembly – electronic equipment manufacturing
systems test foreman/woman – electronic equipment manufacturing

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who assemble, fabricate, inspect and test electronic and electromechanical assemblies, subassemblies, parts and components
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend work measures to improve productivity
- Requisition materials and supplies
- Train workers in job duties, safety procedures and company policies and recommend personnel actions such as hirings and promotions
- Ensure safety rules and regulations are followed
- Prepare production and other reports
- May set up machines and equipment
- Supervise, co-ordinate and schedule the activities of related helpers and labourers.

Employment requirements

- Completion of secondary school is required.
- Several years of experience as an electronics assembler, fabricator, inspector or tester are usually required.
- Post-secondary education in electronics or a related discipline is required.

Classified elsewhere

- *Electrical and electronics engineering technologists and technicians* (2241)
- *Electronics assemblers, fabricators, inspectors and testers* (9523)
- *Electronic service technicians (household and business equipment)* (2242)
- *Supervisors, electrical products manufacturing* (9223)

9223 Supervisors, electrical products manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers who assemble, fabricate and inspect electrical components, appliances, motors and industrial equipment. They are employed by companies that manufacture electrical products.

Example titles

foreman/woman, electrical motor assembly
foreman/woman, electrical transformer assembly
foreman/woman, switchgear assembly

supervisor, electrical appliance assembly
supervisor, electrical equipment manufacturing

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who assemble, fabricate and inspect various types of electrical apparatus and equipment such as electrical appliances, batteries, electric motors, transformers and generators and electrical switchgear and control equipment
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend work measures to improve productivity
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education in electrical or manufacturing technology or other related discipline may be required for some positions in this group.
- Several years of experience as an assembler, inspector or lead hand are required.

Classified elsewhere

- *Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing (9524)*
- *Assemblers, fabricators and inspectors, industrial electrical motors and transformers (9525)*
- *Contractors and supervisors, electrical trades and telecommunications occupations (7202)*
- *Supervisors, electronics manufacturing (9222)*

9224 Supervisors, furniture and fixtures manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers who manufacture furniture and fixtures made of wood or other materials. They are employed in furniture and fixtures manufacturing establishments.

Example titles

foreman/woman, desk assembly
foreman/woman, furniture assembly
foreman/woman, woodworking machine operators
– furniture and fixtures manufacturing

laminating foreman/woman
supervisor, furniture and fixture manufacturing
supervisor, furniture finishers
supervisor, woodworking machine operators

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who assemble furniture and fixtures of any materials, operate woodworking machines and finish furniture to specified colour or finish
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend work measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policy
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports.

Employment requirements

- Completion of secondary school is usually required.
- Experience as a furniture and fixture assembler, woodworking machine operator, cabinetmaker or furniture finisher, is usually required.

Classified elsewhere

- *Cabinetmakers (7272)*
- *Contractors and supervisors, carpentry trades (7204)*
- *Furniture and fixture assemblers and inspectors (9532)*
- *Furniture finishers and refinishers (9534)*
- Supervisors of millwork and wood product manufacturing other than furniture and fixture, and wood machining (in 9227 *Supervisors, other products manufacturing and assembly*)
- *Woodworking machine operators (9437)*

9226 Supervisors, other mechanical and metal products manufacturing

Supervisors in this unit group supervise and co-ordinate the activities of workers who fabricate, assemble and inspect mechanical and metal products, such as aircraft and aircraft parts, heavy trucks, buses, trailers, motor vehicle engines, transmissions, heating equipment, commercial refrigeration and similar metal products. They are employed by a wide variety of manufacturing companies.

Example titles

aircraft assembly foreman/woman
engine assembly foreman/woman (except aircraft)
foreman/woman, metalworking machine operators
foreman/woman, mobile home assembly

shipyard painter foreman/woman
supervisor, helicopter assembly
supervisor, snowmobile assembly
truck trailer assembly foreman/woman

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule activities of workers who assemble and inspect products such as aircraft, buses, heavy trucks, transmissions, automobile engines and refrigeration and heating equipment
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school is usually required.
- Post-secondary education may be required for some occupations in this group.
- Several years of experience as an assembler or inspector in the same company are usually required.

Classified elsewhere

- Aircraft engine assembly and machine fitters' supervisors (in 7301 *Contractors and supervisors, mechanic trades*)
- *Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations* (7201)
- *Supervisors, electrical products manufacturing* (9223)
- *Supervisors, motor vehicle assembling* (9221)

9227 Supervisors, other products manufacturing and assembly

This unit group includes supervisors, not elsewhere classified, who supervise and co-ordinate the activities of workers who assemble, fabricate and inspect a variety of products, such as jewellery, clocks and watches, millwork, sporting goods, toys and other miscellaneous products. They are employed in a wide variety of manufacturing companies.

Example titles

foreman/woman, bicycle assembly
foreman/woman, clock and watch assembly
foreman/woman, jewellery manufacturing
foreman/woman, millwork assembly

supervisor, millwork assembly
supervisor, silverware manufacturing
supervisor, sports equipment assembly
supervisor, toy manufacturing

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule activities of workers who assemble, fabricate and inspect products, such as jewellery, clocks, watches, bicycles, millwork, sporting goods and toys
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Requisition materials and supplies
- Train workers in job duties, safety procedures and company policies
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports
- May set up machines and equipment.

Employment requirements

- Completion of secondary school may be required.
- Several years of experience as an assembler or inspector in the same company are usually required.

Additional information

- There is little mobility between different types of supervisors in this unit group.

Classified elsewhere

- *Other labourers in processing, manufacturing and utilities* (9619)
- *Other products assemblers, finishers and inspectors* (9537)
- Supervisors of woodworking machine operators (in 9224 *Supervisors, furniture and fixtures manufacturing*)

9231 Central control and process operators, mineral and metal processing

Central control and process operators, mineral and metal processing, operate and monitor multi-function process control machinery and equipment to control the processing of mineral ores, metals or cement. They are employed in mineral ore and metal processing plants such as copper, lead and zinc refineries, uranium processing plants, steel mills, aluminum plants, precious metal refineries and cement processing plants.

Example titles

blast furnace operator
central control caster
central control room operator – primary metal processing
chief flotation operator

console operator – cement manufacturing
pelletizing control operator
roaster operator – primary metal processing
rolling mill control operator

Main duties

Central control and process operators, mineral and metal processing, perform some or all of the following duties:

- Co-ordinate and monitor the operation of a particular aspect of mineral ore, metal and cement processing production through control panels, computer terminals or other control systems, usually from a central control room
- Operate multi-function central process control machinery to grind, separate, filter, melt, roast, treat, refine or otherwise process mineral ores
- Observe computer printouts, video monitors and gauges to verify specified processing conditions and to make necessary adjustments
- Co-ordinate and supervise production crew such as machine and process operators, tenders, assistants and helpers
- Start up and shut down the production system in cases of emergency or as required by schedule
- Provide or organize training for members of production crew
- Maintain shift log of production and other data and prepare production and other reports.

Employment requirements

- Completion of secondary school is required.
- A college diploma may be required for some positions in this group.
- On-the-job training is provided.
- Several years of experience as a machine or process operator, usually in the same company or production department, are required.

Additional information

- There is little mobility among the various types of central control and process operators within the mineral and metal processing industry.
- With experience, central control and process operators may progress to supervisory positions in mineral and metal processing.

Classified elsewhere

- Foundry furnace operators and casters (in 9412 *Foundry workers*)
- *Machine operators, mineral and metal processing* (9411)
- *Supervisors, mineral and metal processing* (9211)

9232 Petroleum, gas and chemical process operators

Petroleum, gas and chemical process operators monitor and operate petroleum, petrochemical and chemical plants and monitor, adjust and maintain processing units and equipment in these plants. They are employed by petroleum and natural gas processing, pipeline and petrochemical companies and industrial, agricultural and specialty chemical and pharmaceutical companies.

Example titles

acid plant operator
cell room operator, chlor-alkali plant
chemical process operator
chief technician, chemical processing
gas field production operator
gas plant operator
gas recovery operator
master operator – chemical processing

oil refinery process operator
panel operator – chemical processing
petroleum process operator
pharmaceutical processing operator
pipeline compressor station operator
process technician – chemical processing
refinery process technician

Main duties

Petroleum, gas and chemical process operators perform some or all of the following duties:

- Operate electronic or computerized control panel from a central control room to monitor and optimize physical and chemical processes for several processing units
- Control process start-up, shut-down and troubleshooting
- Monitor outside process equipment
- Adjust equipment, valves, pumps and controls and process equipment
- Authorize or co-sign maintenance work orders
- Shut down, isolate and prepare process units or production equipment for maintenance
- Sample products, perform tests, record data, carry out statistical process control on process operations, and write production logs
- Develop operator procedures for normal operation, start-up or shut-down of unit
- Participate in safety audits and programs and provide emergency response when required
- Ensure adherence to safety and environmental regulations
- May rotate between different processing units during shift cycles
- May work in a team with shared supervisory responsibilities and participate in training other workers
- May be cross-trained in a skilled trade and work in the trade during shift cycles.

Employment requirements

- Completion of secondary school is required. Mathematics, chemistry and physics subjects are often specified.
- A college diploma in process operation, sciences or a related subject may be required for some positions.
- Petroleum and chemical process operators and process technicians require completion of several years of formal company training.
- Experience as a petroleum or chemical process operator in all the operating units controlled by the central control room is required for chief operators.
- Company certification as a petroleum process operator or technician may be required.
- A provincial stationary engineer licence, compressor operator or refrigeration certificate may be required when certain kinds of equipment are included in the process.
- Certification in the transportation of dangerous goods (TDG), first aid, firefighting, or workplace hazardous materials information system (WHMIS) may be required.

Additional information

- There is considerable mobility among jobs within a company, often as part of a formal development or training program.
- Mobility to other petroleum or chemical processing plants is possible, but may be limited by the usual practice of training and promoting workers from within the establishment.
- Progression to supervisory or managerial positions is possible with experience.

9232 Petroleum, gas and chemical process operators

- Occupations in this unit group may involve exposure to hazards of toxic, flammable or explosive chemicals and personal protective equipment may be required.

Classified elsewhere

- *Chemical plant machine operators* (9421)
- *Supervisors, petroleum, gas and chemical processing and utilities* (9212)

9235 Pulp, papermaking and coating control operators

Pulping, papermaking and coating control operators operate and monitor multi-function process control machinery and equipment to control the processing of wood, scrap pulp, recyclable paper, cellulose materials, paper pulp and paperboard. They are employed by pulp and paper companies.

Example titles

bleach plant operator – pulp and paper
control operator, paper machine
panelboard operator – pulp and paper

pulping control operator
pulping group operator – pulp and paper
pulping technician

Main duties

Pulping, papermaking and coating control operators perform some or all of the following duties:

- Operate, co-ordinate and monitor pulping, papermaking and papercoating process equipment from central control room or machine consoles and control panels in equipment cabins to control process operations and machinery in the production of pulp and paper
- Control the processing of wood, scrap pulp, recyclable paper, cellulose materials, pulp paper and paperboard and monitor the chemical and physical process operations using a distributed control system and process computers
- Observe panel indicators, gauges, video monitors and other instruments to detect equipment malfunctions and ensure pulping, papermaking and coating processes are operating according to process specifications
- Analyze instrument readings and production test samples and make adjustments or direct other pulp mill, papermaking and finishing machine operators to make adjustments to pulp production, papermaking and coating process and equipment as required
- Complete and maintain production reports.

Employment requirements

- Completion of secondary school is required.
- A college or other program in forest products processing or a related subject may be required for pulping control operators.
- Completion of several weeks of formal company training and several months of on-the-job training is required.
- Several years of experience as a pulp mill, papermaking or finishing machine operator within the same company is usually required.

- A certificate in industrial first aid may be required.
- A competency certificate in natural gas may be required.

Additional information

- There is limited mobility among jobs within this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Papermaking and finishing machine operators* (9433)
- *Pulp mill machine operators* (9432)
- *Supervisors, forest products processing* (9215)

9241 Power engineers and power systems operators

Power engineers operate and maintain reactors, turbines, boilers, generators, stationary engines and auxiliary equipment to generate electrical power and to provide heat, light, refrigeration and other utility services for commercial, industrial and institutional buildings and other work sites. Power systems operators monitor and operate switchboards and related equipment in electrical control centres to control the distribution of electrical power in transmission networks. They are employed by power generation plants, electrical power utilities, manufacturing plants, hospitals, universities and government and commercial establishments.

Example titles

apprentice power dispatcher

auxiliary plant operator

building systems technician

control room operator – electrical power systems

distribution control operator – electrical power systems

electrical power systems operator

energy from waste plant operator

load dispatcher apprentice – electrical power systems

nuclear generating station field operator

nuclear reactor operator – electrical power systems

power dispatcher – generating station

power engineer

power plant operator

power plant stationary engineer

stationary engineer

system controller – electrical power systems

Main duties

Power engineers perform some or all of the following duties:

- Operate automated or computerized control systems, stationary engines and auxiliary equipment such as reactors, boilers, turbines, generators, pumps, compressors, pollution control devices and other equipment to generate electrical power and to provide light, heat, ventilation and refrigeration for buildings, industrial plants and other work sites
- Start up and shut down power plant equipment, control switching operations, regulate water levels and communicate with systems operators to regulate and co-ordinate transmission loads, frequency and line voltages
- Monitor and inspect plant equipment, computer terminals, switches, valves, gauges, alarms, meters and other instruments to measure temperature, pressure and fuel flow, to detect leaks or other equipment malfunctions and to ensure plant equipment is operating at maximum efficiency
- Analyze and record instrument readings and equipment malfunctions
- Troubleshoot and perform corrective action and minor repairs to prevent equipment or system failure

- Clean and lubricate generators, turbines, pumps and compressors and perform other routine equipment maintenance duties using appropriate lubricants and hand, power and precision tools
- Maintain a daily log of operation, maintenance and safety activities, and write reports on plant operation
- May assist in the development of operation, maintenance and safety procedures.

Power systems operators perform some or all of the following duties:

- Operate and monitor computerized switchboards and auxiliary equipment in electrical control centres to control the distribution and to regulate the flow of electrical power in the transmission network
- Co-ordinate, schedule and direct generating station and substation power loads and line voltages to meet distribution demands during daily operations, system outages, repairs and importing or exporting of power
- Monitor and visually inspect station instruments, meters and alarms to ensure transmission voltages and line loadings are within prescribed limits and to detect equipment failure, line disturbances and outages
- Issue work and test permits to electrical and mechanical maintenance personnel, assist maintenance and technical personnel to locate and isolate system problems, and assist during routine system testing

9241 Power engineers and power systems operators

- Complete and maintain station records, logs and reports.

Employment requirements

- Completion of secondary school is usually required.
- Power engineers require a college training program in stationary or power engineering and several years of work experience in the field.
- Power engineers require a provincial or territorial power engineering or stationary engineering certificate according to class.
- Stationary engineer trade certification according to class (4th, 3rd, 2nd or 1st class) is compulsory in Nova Scotia and Quebec and available, but voluntary in New Brunswick.
- Power systems operators require completion of a three- to five-year power system operator apprenticeship program
or
Over three years of work experience in the trade and some college or industry courses in electrical and electronic technology.
- Trade certification is available, but voluntary for power system operators in Newfoundland and Labrador.
- Control room operators at nuclear power plants require licensing from the Canadian Nuclear Safety Commission.

Additional information

- There is little mobility between nuclear power generation station operators and other classic or alternative power generation station operators.
- Progression from lower to higher classes for stationary or power engineers is dependent on further training and experience.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Nuclear power station equipment mechanics (in 7311 *Construction millwrights and industrial mechanics*)
- Professional engineers (in 213 *Civil, mechanical, electrical and chemical engineers*)
- Professional engineers (in 214 *Other engineers*)
- Supervisors of stationary engineers and auxiliary equipment operators (in 9212 *Supervisors, petroleum, gas and chemical processing and utilities*)

9243 Water and waste treatment plant operators

Water treatment plant operators monitor and operate computerized control systems and related equipment in water filtration and treatment plants to regulate the treatment and distribution of water. Liquid waste plant operators monitor and operate computerized control systems and related equipment in wastewater, sewage treatment and liquid waste plants to regulate the treatment and disposal of sewage and wastes. They are employed by municipal governments and industrial facilities. This unit group also includes waste treatment plant operators in composting plants and other waste management facilities.

Example titles

environmental systems operator – water treatment operator, water purification plant process operator, liquid waste sewage plant operator

waste treatment plant operator
wastewater treatment plant operator
water filtration plant operator
water treatment plant operator

Main duties

Water treatment plant operators perform some or all of the following duties:

- Operate and monitor computerized control systems and related equipment in water filtration and treatment plants to regulate the treatment and distribution of water
- Monitor and inspect plant equipment and systems to detect equipment malfunctions and to ensure plant systems are operating normally
- Read flow meters, gauges and other recording instruments to measure water output and consumption levels, bacterial content, chlorine and fluoride levels
- Collect and test water samples for chemical and bacterial content, analyze test results and instrument readings and make adjustments to plant equipment and systems to ensure quality control
- Provide verbal or written instructions for process control changes to waterworks system to ensure water produced meets standardized quality requirements
- Perform security checks in plant and on grounds
- Respond to public enquiries regarding water quality issues and emergencies
- Complete and maintain plant logs, reports and statistics
- May perform minor maintenance or assist skilled tradespersons with installation and repair of plant machinery
- May measure, mix and transport chemicals to maintain feed stocks.

Liquid waste plant operators perform some or all of the following duties:

- Operate and monitor computerized control systems and related equipment in wastewater treatment, sewage treatment and liquid waste plants to regulate the flow of sewage through settling, aeration and digestion tanks, and to treat and dispose of sewage and wastes
- Patrol plant to check pumps, motors, filters, chlorinators and other plant equipment; monitor and read gauges, meters and other recording instruments to detect equipment malfunctions and ensure plant systems and equipment are operating within prescribed limits
- Test and adjust chemical feed rates to ensure that disinfection processes meet quality standards
- Collect waste and sewage samples, test and analyze results and make adjustments to plant equipment and systems as required
- Perform security checks in plant and on grounds
- Complete and maintain plant logs and reports
- Perform preventive maintenance on plant equipment to ensure that the facility operates in accordance with required standards
- May assist skilled tradespersons with installation and repair of plant machinery.

Employment requirements

- Completion of secondary school is required.
- College or industry training courses in chemistry, pollution control or related subjects are required.
- Certification in water treatment and distribution (Levels I, II, III or IV depending on the certification level of the plant) is required for water treatment plant operators.

9243 Water and waste treatment plant operators

- Certification in wastewater collection and wastewater treatment (Level I, II, III or IV depending certification level of the plant) is required for wastewater treatment plant operators.
- Solid waste, landfill or compost facility operator certification may be required for operators in waste treatment plants.
- Certification in workplace hazardous materials information system (WHMIS), transportation of dangerous goods (TDG), and courses in safety practices may be required.
- On-the-job training is provided.
- Previous experience as a worker in the water treatment or wastewater field may be required.

Additional information

- There is limited mobility between water treatment plant and waste plant operators.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Chemical engineers* (2134)
- *Chemical technologists and technicians* (2211)
- *Supervisors, petroleum, gas and chemical processing and utilities* (9212)
- *Water and waste plant labourers* (in 9613 *Labourers in chemical products processing and utilities*)
- *Waterworks and gas maintenance workers* (7442)

9411 Machine operators, mineral and metal processing

Workers in this unit group operate single-function machines or machinery that is part of a larger production process to process mineral ore and metal products. They are employed in mineral ore and metal processing plants such as copper, lead and zinc refineries, uranium processing plants, steel mills, aluminum plants, precious metal refineries and cement processing plants.

Example titles

aluminum classifier

asbestos dryer

billet heater

brick and tile crusher operator

cement miller

extrusion press operator

foil-winding machine operator

furnace charger – mineral and metal processing

ladle pourer

lead refiner

lime kiln operator

mica sheet laminator

quenching car operator

scrap metal shredder

sintering machine operator

slurry equipment operator

steel roller

uranium classifier operator

zinc cell operator

Main duties

Machine operators, mineral and metal processing, perform some or all of the following duties:

- Set up, prepare and adjust mineral ore, metal and cement processing machinery to carry out one step in the overall mineral ore or metal processing operation
- Operate single-function machinery to grind, separate, filter, mix, treat, cast, roll, refine or otherwise process mineral ores
- Observe gauges, meters, computer printouts, video monitors and products to ensure correct operation of machine and verify specified processing conditions
- Make adjustments to machinery as required
- Record production information and complete reports
- May assist with machinery maintenance or repair.

Employment requirements

- Completion of secondary school is usually required.
- On-the-job training is provided.
- Experience as a labourer in mineral and metal processing is usually required for machine operators.

Additional information

- There is little mobility among the various types of machine operators within the mineral and metal processing industry.
- With experience, machine operators may progress to central control and process operators in mineral and metal processing.

Classified elsewhere

- *Central control and process operators, mineral and metal processing* (9231)
- *Concrete, clay and stone forming operators* (9414)
- *Foundry workers* (9412)
- *Glass forming and finishing machine operators and glass cutters* (9413)
- *Inspectors and testers, mineral and metal processing* (9415)
- *Labourers in mineral and metal processing* (9611)
- *Supervisors, mineral and metal processing* (9211)

9412 Foundry workers

This unit group includes workers who make foundry moulds and cores by hand or machine, cast molten metal, and operate furnaces in the foundry industry. They are employed by metal foundries and foundry departments of metal products manufacturing companies.

Example titles

bench moulder	manual moulder
casting machine operator	melter – foundry
ceramic mouldmaker	metal caster
die-casting machine operator	pit moulder
foundry worker	sand coremaker
furnace operator – foundry	sand moulder
machine coremaker	

Main duties

The following is a summary of the main duties for some occupations in this unit group:

- Manual mouldmakers make and repair sand moulds using patterns, moulding boxes, sand and hand tools following bench, floor or pit moulding methods; operate ovens to dry moulds; may pour molten metal into moulds to produce metal castings.
- Manual coremakers make cores for use inside moulds to form holes or void spaces in castings using core boxes, sand, hammer and wire or other reinforcing material; coat cores with protective materials and bake cores in oven.
- Machine mouldmakers and coremakers set up, adjust and operate various mouldmaking and coremaking machines to make sand and ceramics moulds and cores.
- Metal casters set up and operate various casting machines to cast ferrous and non-ferrous metal products; hand ladle and pour molten metal into moulds to produce castings.
- Foundry furnace operators operate furnaces used to melt metals for moulding and casting.

Employment requirements

- Completion of secondary school may be required.
- Up to two years of on-the-job training are required for manual mouldmakers; several months of on-the-job training are required for other workers in this unit group.

Additional information

- There is some mobility between workers in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Foundry labourers (in 9611 *Labourers in mineral and metal processing*)
- Furnace operators who convert and refine primary metals, and operators of continuous casting processes (in 9231 *Central control and process operators, mineral and metal processing*)
- Supervisors of foundry workers (in 9211 *Supervisors, mineral and metal processing*)

9413 Glass forming and finishing machine operators and glass cutters

Machine operators in this unit group operate multi-function process control machinery or single function machines to melt, form, cut or finish flat glass, glassware, bottles, and other glass products. Glass cutters cut flat glass of various thicknesses to specified sizes and shapes by hand. They are employed by glass and glass products manufacturing companies.

Example titles

bottle machine operator – glass products
manufacturing
float operator – glass forming
glass beveller
glass-blowing machine operator
glass cutter, hand

glass edger
glass-finishing machine operator
glass moulder
glass-pressing machine operator
mirror maker

Main duties

Glass process control operators perform some or all of the following duties:

- Operate multi-function process control machinery through control panels, computer terminals or other control systems to mix and melt raw materials; heat, anneal, temper or form float glass or glass products; and coat glass with silver or other metals and materials
- Observe gauges, computer printouts and video monitors to verify specified processing conditions and make adjustments as necessary
- Maintain shift log of production and other data
- May operate process control machinery to cut glass or assemble glass window units
- May clean and maintain process machinery
- May ensure adequate levels of oil, soap, talc or other materials used in machine production of glass.

Glass forming machine operators perform some or all of the following duties:

- Set up and adjust automatic glass feeding, flowing and forming machines
- Operate and maintain machines that press or blow molten glass in moulds to form or shape containers, such as bottles, jars and drinking glasses
- Operate electric kilns that heat glass sheets and mould to the shape and curve of metal jigs
- Spray or swab moulds with oil solutions to prevent adhesion of glass
- Weigh, measure and check production samples to assess conformance to specifications using scales and gauges and by visual verification.

Glass finishing machine operators perform some or all of the following duties:

- Set up and adjust glass and glass-product finishing machines
- Operate and maintain finishing machines to grind, drill, sand, bevel, decorate, wash or polish glass or glass products
- Visually inspect products for quality
- Record manufacturing information such as quantity, size and type of goods produced.

Glass cutters perform some or all of the following duties:

- Jig and measure and mark glass or place pattern on or under glass for cutting
- Examine and mark defective glass to obtain best cut
- Cut glass along marked outlines or around pattern using hand tools
- Smooth rough edges using belt sander or smoothing wheels
- Set up, operate and adjust computerized or robotic glass cutting equipment
- Monitor process for product quality.

Employment requirements

- Completion of secondary school may be required.
- Experience as a machine operator helper in glass manufacturing is usually required for machine operators in this unit group.
- Experience as a glass cutter helper is usually required for manual glass cutters.

Additional information

- Mobility is possible among the various types of machine operators in this unit group.

9413 Glass forming and finishing machine operators and glass cutters

- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Glass blowers (in 5244 *Artisans and craftspersons*)
- *Glaziers* (7292)
- Helpers and labourers in glass products manufacturing (in 9611 *Labourers in mineral and metal processing*)
- Neon sign makers (in 9524 *Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing*)
- Production inspectors in glass products manufacturing (in 9415 *Inspectors and testers, mineral and metal processing*)
- Supervisors of workers in this unit group (in 9211 *Supervisors, mineral and metal processing*)

9414 Concrete, clay and stone forming operators

This unit group includes workers who cast and finish concrete products, operate machines to extrude, mould, press and bake clay products, and operate machines to form, cut and finish stone products. They are employed by concrete, clay and stone products manufacturing companies.

Example titles

asbestos shingle presser	moulder, clay products
brick presser operator	precast concrete moulder
clay press operator	precast concrete slab maker
concrete block maker	stone driller
finisher – concrete, clay and stone products	stone planer
granite cutter	stonework moulder
marble cutter	

Main duties

Concrete products forming and finishing workers perform some or all of the following duties:

- Construct clay models and moulds by hand and with hand tools for use in casting concrete products
- Build and repair wooden forms used to mould concrete products
- Position reinforcing rods or wire mesh in moulds and fill moulds with concrete from suspended pouring buckets
- Start vibrating tables to settle concrete, or tamp concrete using electric vibrator
- Remove castings from mould with crane or forklift, and finish surfaces of castings using screed or trowel
- Cut cured concrete pipe sections with saw or chisel, and cement sections together to form odd shaped fittings.

Concrete products machine operators perform some or all of the following duties:

- Set up, adjust and operate single-function machines to mix, drill, grind and cut concrete to specifications in the manufacture of concrete products
- Check products for quality control, repair flaws and perform ongoing machine adjustments and minor maintenance as necessary
- Move products using forklift, crane or hydraulic hoist
- Record manufacturing information such as quantity, size and type of goods produced.

Clay products forming and finishing machine operators perform some or all of the following duties:

- Set up and operate automatic machines that mix ingredients, extrude tempered clay mixture and cut extruded clay into sections to make products such as bricks, drain tiles and porcelain insulators
- Operate mechanical or hydraulic ram and hot-presses to form pottery and porcelain ware
- Prepare and mix slip and fill moulds with slip to form pottery and porcelain ware such as jugs, cups, sinks and toilet bowls
- Operate kiln to bake clay products to specified hardness.

Stone forming and finishing workers perform some or all of the following duties:

- Operate blade or wire saws to cut blocks of stone to specified dimensions
- Operate machines to grind and polish surfaces of stone blocks, slabs or other stone products to specific shape or design and to produce smooth finish
- Operate sandblasting equipment to cut inscriptions or decorative designs in stone monuments
- Finish stone products with spray paint and by mounting plaques or installing concrete bases
- Operate stone-dressing lathe to sharpen and dress grindstones that grind logs into pulp
- Operate machine to drill holes in blocks or slabs of stone according to specifications.

Employment requirements

- Some secondary school education may be required.

9414 Concrete, clay and stone forming operators

- On-the-job training is provided.
- Experience as a helper or labourer in concrete, clay or stone products manufacturing may be required.
- Mould makers in this unit group who construct and repair wooden forms may require some carpentry or woodworking experience.

Additional information

- Mobility is possible between workers within each of the concrete, clay and stone manufacturing sectors, but there is little or no mobility between these manufacturing sectors.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Concrete finishers (7282)*
- Helpers and labourers in concrete, clay and stone products manufacturing (in 9611 *Labourers in mineral and metal processing*)
- Inspectors of concrete, clay and stone products (in 9415 *Inspectors and testers, mineral and metal processing*)
- Sculptors (in 5136 *Painters, sculptors and other visual artists*)
- Stone carvers and potters (in 5244 *Artisans and craftspersons*)
- Stone masons (in 7281 *Bricklayers*)
- Supervisors of workers in this unit group (in 9211 *Supervisors, mineral and metal processing*)

9415 Inspectors and testers, mineral and metal processing

Inspectors and testers in this unit group inspect, grade, sample or test raw materials and products from mineral ore and metal processing operations. They are employed in mineral ore and metal processing plants such as copper, lead and zinc refineries, uranium processing plants, steel mills, aluminum plants, precious metal refineries, cement processing plants, clay, glass and stone processing plants and foundries.

Example titles

asbestos grader
brick and tile inspector
castings tester – primary metal and mineral products processing
clay products grader
core tester – foundry
fibreglass tester
glass quality control inspector

heat treating inspector – metal processing
metal processing inspector
mineral sampler – mineral products processing
molten metal sampler – primary metal processing
salvage glass inspector
sheet steel inspector – primary metal processing
steel tester – primary metal processing

Main duties

Inspectors and testers perform some or all of the following duties:

- Inspect mineral ore, metal, cement, glass, clay or concrete products at various stages of processing to ensure adherence to specifications
- Grade and label raw materials or finished products according to size, thickness, composition or other classification standards
- Take samples of products during or after processing operation for routine analysis or for subsequent laboratory analysis
- Test product for strength, density, durability and conformance to specifications
- Advise supervisor or central control operator and process machine operators of problems and product deficiencies
- Complete inspection and test reports.

Employment requirements

- Completion of secondary school is usually required.
- Experience as a machine or process operator in mineral and metal processing is usually required.

Classified elsewhere

- *Central control and process operators, mineral and metal processing (9231)*
- *Machine operators, mineral and metal processing (9411)*
- *Non-destructive testers and inspection technicians (2261)*
- *Quality control technologists and technicians (in 2211 Chemical technologists and technicians)*
- *Quality control technologists and technicians (in 2212 Geological and mineral technologists and technicians)*
- *Supervisors, mineral and metal processing (9211)*

9416 Metalworking and forging machine operators

Light metalworking machine operators operate metalworking machines which shape and form sheet or other light metal into parts or products. Heavy metalworking machine operators operate metalworking machines which shape and form steel or other heavy metal into parts or products. Forging machine operators operate forging machines to form and shape metal into various shapes and sizes and impart desired strength, hardness or other characteristics. Light metalworking machine operators are employed by sheet metal products manufacturing companies, sheet metal shops and other light metal products manufacturing establishments. Heavy metalworking machine operators are employed by structural steel fabrication, boiler and platework manufacturing companies, heavy machinery manufacturing companies and in the shipbuilding industry. Forging machine operators are employed primarily in the fabricated metal products, machinery and transportation equipment manufacturing industries.

Example titles

bending press operator – metal fabrication
cold press operator – metal forging
disk flange operator – metal fabrication
drop hammer operator – metal forging
electric arc cutter – metal products manufacturing
forging press operator
metal-forming machine set-up operator
metalworking machine operator

power brake operator – metal fabrication
power press operator – metal fabrication
punch press setter – metalworking
roll operator – metal fabrication
saw operator – metal fabrication
shear setter – metal fabrication
sheet metal roll operator – metal fabrication

Main duties

Metalworking machine operators perform some or all of the following duties:

- Read specifications or follow verbal instructions
- Lay out, set up and operate one or more light or heavy metalworking machines such as shears, power presses, saws, plate rolls, drills, brakes, slitters, punch presses, computer numerically controlled (CNC) equipment, and other hand tools to cut, bend, roll, ream, punch and drill, weld or otherwise shape and form metal stock into parts or products
- Operate machines or equipment which weld, solder, bolt, screw or rivet metal parts together
- Check products for correct shapes, dimensions and other specifications
- Troubleshoot and perform corrective action or minor repairs
- May select and transport material to work area manually or using crane or hoist
- May document work completed
- May build staging or erect scaffolding as required for heavy metalworking jobs
- May clean or lubricate equipment and replace parts as required.

Forging machine operators perform some or all of the following duties:

- Operate gas or oil fired furnaces to heat metal to proper temperature prior to forging
- Place metal pieces in furnace using hand tongs or overhead cranes and remove from furnace when colour of metal indicates proper forging temperature, or load and unload furnace with automatic conveyor
- Position heated or cold metal pieces, on die of press or other forging machinery
- Operate presses or other forging machines to perform hot or cold forging by flattening, straightening, twisting, forming, drawing, upsetting, splitting, cutting, punching, piercing, bending, coining, or other operations to shape or form metal
- Position and adjust dies on anvil of forging machinery using overhead cranes or other hoisting devices and hand tools.

Employment requirements

- Completion of secondary school education may be required.
- Previous experience as a labourer or helper in the same company may be required.
- On-the-job training is usually provided.

9416 Metalworking and forging machine operators

Additional information

- There is little or no mobility between operators of light and heavy metalworking machines.
- Progression to structural metal fabricator or supervisory positions is possible with experience for metalworking machine operators.
- Progression to blacksmith, die setting, or supervisory positions is possible with experience for forging machine operators.

Classified elsewhere

- *Sheet metal workers (7233)*
- *Structural metal and platework fabricators and fitters (7235)*
- Supervisors of metalworking machine operators (in 9226 *Supervisors, other mechanical and metal products manufacturing*)

9417 Machining tool operators

Machining tool operators set up and operate or tend metal-cutting machines designed for repetitive machining work. They are employed by metal products and other manufacturing companies and in machine shops. This unit group also includes workers who etch or chemically mill metal pieces.

Example titles

aircraft parts etcher

boring mill operator – metal machining

CNC machining tool operator

lathe machining operator

machining tool operator

milling machine set-up operator

production gear cutter

production grinder operator – metal machining

radial drill operator – metal machining

Main duties

Machining tool operators perform some or all of the following duties:

- Study job orders and interpret blueprints to determine machining operations to be performed
- Set up and operate machine tools to perform repetitive machining operations, such as turning, milling, drilling, boring, planing, honing, broaching, grinding or other machining operations
- Verify dimensions of parts machined using micrometers, callipers and other precision measuring instruments
- Prepare etching solution and immerse metal parts or workpiece in etching solution to remove unwanted portions
- Perform routine maintenance on equipment and machinery
- May enter codes specifying speed, feed and cut of the toolpath for computer numerical controlled (CNC) machine tools.

Employment requirements

- Some secondary school education is required.
- College or other courses in machining may be required.
- Several months of on-the-job training are provided.
- Senior positions in this unit group, such as set-up operator, require experience as a machine operator.

Additional information

- Experienced machining tool operators may become machinists or tool and die makers through apprenticeship training.

Classified elsewhere

- CAD/CAM and CNC programmers (in 2233 *Industrial engineering and manufacturing technologists and technicians*)
- *Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations (7201)*
- *Machinists and machining and tooling inspectors (7231)*
- *Tool and die makers (7232)*

9418 Other metal products machine operators

This unit group includes metal products machine operators, not elsewhere classified, who operate one or more automatic or multi-purpose machines to produce a variety of metal parts and products, such as wire mesh, nails, bolts and chains. They are employed by a wide variety of metal products manufacturing companies.

Example titles

bolt machine operator

bullet maker

can-forming machine operator

chain-making machine operator

metal cable maker operator

nail making machine tender

spring machine operator

wire screen maker

wire weaver

Main duties

Machine operators in this unit group perform some or all of the following duties:

- Operate or tend automatic or multi-purpose machines including wire looms to produce metal parts and metal products such as wire screening, fencing, tinware, metal baskets, racks, hooks, metal tubing and similar articles
- Fit and assemble components using hand and power tools
- Clean, polish, file or otherwise finish products
- Check products for quality and other specifications
- May clean and lubricate machinery.

Employment requirements

- Some secondary school education is usually required.
- On-the-job training is provided.
- Experience as a labourer in the same company may be required.

Additional information

- There is some mobility among machine operators in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Machining tool operators (9417)*
- *Metalworking and forging machine operators (9416)*
- Supervisors of machine operators in this unit group (in 9226 *Supervisors, other mechanical and metal products manufacturing*)

9421 Chemical plant machine operators

Chemical plant machine operators monitor and operate units and machinery to blend, mix, process and package a wide range of specialty chemicals, pharmaceuticals, cleaning and toiletry products. They are primarily employed in chemical, cleaning compound, ink and adhesive industries, but may also be employed by chemical processing departments in other industries.

Example titles

batch mixer – chemical processing

blender – chemical processing

capsule machine operator

evaporator operator – chemical processing

formulations blender operator

glue blender

granulator machine operator

mixer – chemical processing

scraper – chemical processing

soap maker

Main duties

Chemical plant machine operators perform some or all of the following duties:

- Monitor meters, gauges and electronic instrumentation on one or more chemical or formulation units, such as mixers, kettles, blenders, dryers, tableting, encapsulation, granulation and coating machines
- Measure, weigh and load chemical ingredients following formulation cards
- Start up, shut down, troubleshoot and clean equipment
- Adjust processing machines and equipment
- Monitor reaction processes and transfers of products in conformance with safety procedures
- Take samples and perform routine chemical and physical tests of products
- Record production data
- May operate equipment from a control room or from control consoles located near the production units.

Employment requirements

- Completion of secondary school is usually required.
- Completion of several months to one year of informal, on-the-job training within the company is required for most mixer and blender operators.
- Completion of more than one year of formal and informal company training may be required for some operators working in pharmaceutical, explosives and agricultural chemical or in specialty chemical plants.
- Previous experience in chemical products processing as an assistant, labourer or helper may be required for some occupations in this unit group.

- Certification in the transportation of dangerous goods (TDG), first aid, firefighting or workplace hazardous materials information system (WHMIS) may be required for some occupations in this unit group.

Additional information

- Mobility between employers producing similar products is possible for some of the more skilled operators in this unit group.
- Progression to supervisory positions or to process control occupations is possible with experience.
- Personal protective equipment may be required when working with some types of chemicals or pharmaceuticals.

Classified elsewhere

- *Petroleum, gas and chemical process operators* (9232)
- *Supervisors, petroleum, gas and chemical processing and utilities* (9212)

9422 Plastics processing machine operators

Plastics processing machine operators set up and operate plastic mixing, calendering, extruding and moulding processing machines used in the manufacture of plastic parts and plastic products. They are employed by plastic products manufacturing companies.

Example titles

bag machine operator

banbury operator – plastic manufacturing

blow moulding machine operator – plastic manufacturing

calender operator – plastic manufacturing

extruder operator – plastic manufacturing

injection moulding operator – plastic manufacturing

moulder, printing rollers – plastic manufacturing

plastics press operator

solution mixer operator – plastic manufacturing

thermoforming operator

Main duties

Mixing machine operators perform some or all of the following duties:

- Weigh resins, colorants and other chemicals according to formula
- Place weighed materials in mixing machine and operate machine to blend plastic and other chemicals to a specified consistency or viscosity
- Monitor operation, regulate material supply and add chemicals and colorants to mixture
- Operate controls to regulate temperature, speed and other processing conditions
- Unload mixture into container or conveyor for further processing
- Maintain and perform minor repairs on machinery as required
- Maintain inventory of material and clean working area.

Calendering process operators perform some or all of the following duties:

- Set up and operate calender machines which transform dough-consistent plastic mass into continuous sheets or films of specified thickness
- Troubleshoot, maintain and make minor repairs to equipment and adjust calender rollers for production line change
- Monitor quality of material produced
- Maintain inventory of material and clean working area.

Extruding process operators perform some or all of the following duties:

- Set up and operate one or more extruding machines which extrude plastic composites products through a nozzle or die
- Change dies on extruding machines according to production line change

- Troubleshoot, maintain and make minor repairs to equipment
- Monitor quality of material produced
- Maintain inventory of material and clean working area.

Moulding process operators perform some or all of the following duties:

- Set up and operate one or more moulding machines which mould plastic products according to specifications
- Change moulds and adjust equipment for production line change
- Troubleshoot, maintain and make minor repairs to equipment
- Monitor quality of material produced and adjust machine settings as required
- Follow formulation card to mix ingredient batches for injection moulding process
- Maintain inventory of material and clean working area.

Employment requirements

- For all operators in this unit group, completion of secondary school is usually required.
- Several years of experience as a helper, tender or packer in the same company may be required.
- Completion of a statistical process control (SPC) course may be required.
- Completion of courses in hydraulics, pneumatics and electronics systems may be required for moulding process operators.
- On-the-job training is provided.

Additional information

- Mobility among the various operators in this unit is possible.

9422 Plastics processing machine operators

- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Labourers in rubber and plastic products manufacturing (9615)*
- *Plastic products assemblers, finishers and inspectors (9535)*
- *Rubber processing machine operators and related workers (9423)*
- *Supervisors, plastic and rubber products manufacturing (9214)*

9423 Rubber processing machine operators and related workers

Workers in this unit group operate rubber processing machinery and assemble and inspect rubber products. They are employed by tire manufacturers and other rubber products manufacturing companies.

Example titles

banbury operator – rubber products manufacturing
belt builder, rubber
blow-out and test operator – rubber products
calender machine operator – rubber products
manufacturing
cure operator – rubber products manufacturing
extruder operator – rubber products manufacturing
hose builder, rubber
inspector, rubber products manufacturing

moulding press tender – rubber products
manufacturing
refiner mill tender – rubber products
manufacturing
rubber processing machine operator
rubber products assembler
scrap rubber grinder – recycling
tire builder
tire inspector

Main duties

Rubber processing machine operators perform some or all of the following duties:

- Set up, operate and tend machinery used for mixing, calendering, extruding, moulding and curing rubber materials or rubber products
- Load or feed rubber, pigments, filler, oil and chemicals into machines
- Check and monitor processing conditions and product quality
- Adjust machines to proper setting as required
- Train or assist in training new workers.

Assemblers, rubber products perform some or all of the following duties:

- Lay out and prepare rubber materials for assembly
- Operate machines or equipment or use hand tools to cut, shape, splice, fit and cement rubber materials to form rubber parts or finished rubber products
- Operate finishing machines or equipment to trim, grind, or buff rubber products into final form
- Train or assist in training new workers.

Rubber products inspectors perform some or all of the following duties:

- Inspect finished rubber products for defects and conformance to specifications and quality standards, visually or using instruments
- Affix seals or tags to approved products and mark and reroute defective products for repair or recycle
- Fill out product inspection report
- May make minor adjustments or repairs to products.

Employment requirements

- Completion of secondary school may be required.
- Experience as a labourer in the same company may be required.
- On-the-job training is provided.

Additional information

- Mobility among the various labourers in this unit group is possible.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Labourers in rubber and plastic products manufacturing (9615)*
- *Plastic products assemblers, finishers and inspectors (9535)*
- *Plastics processing machine operators (9422)*
- *Supervisors, plastic and rubber products manufacturing (9214)*

9431 Sawmill machine operators

Sawmill machine operators operate, monitor and control automated lumbermill equipment to saw timber logs into rough lumber; saw, trim and plane rough lumber into dressed lumber of various sizes; and saw or split shingles and shakes. They are employed in sawmills and planing mills.

Example titles

circular saw operator
edgerman/woman
head sawyer
log cut-off operator

planer operator
resaw operator
shake splitter
trimmerman/woman

Main duties

Sawmill machine operators perform some or all of the following duties:

- Operate front-end loaders and stationary deck cranes to feed logs into the sawmill
- Examine logs and rough lumber to determine size, condition, quality and other characteristics to decide best lumber cuts to carry out, or use automated equipment to convey logs through laser scanners which determine the most productive and profitable cutting patterns
- Operate automated lumbermill equipment from control rooms or equipment consoles to saw logs into rough lumber; saw, trim and plane rough lumber into dressed lumber of various sizes; and saw or split shingles and shakes
- Start conveyor system to move logs and lumber to and from saws
- Set up and adjust saw equipment and replace blades or bands using wrenches, gauges and other hand tools
- Operate equipment to sort and stack lumber by length and thickness, move stacks to storage areas or drying kilns, and feed lumber through planers
- Monitor movement of lumber and computer screens to ensure cuts are made according to specifications, and print production reports
- Clean and lubricate sawmill equipment.

Employment requirements

- Completion of secondary school is usually required.
- College courses in wood processing technology may be required.
- Several weeks of on-the-job training are usually provided.

- Head sawyers and planer operators usually require several years of experience in other sawmill machine operating positions in the same company.
- A certificate in industrial first aid may be required.

Additional information

- There is some mobility among jobs in this occupational group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Labourers in wood, pulp and paper processing* (9614)
- *Lumber graders and other wood processing inspectors and graders* (9436)
- *Other wood processing machine operators* (9434)
- *Supervisors, forest products processing* (9215)
- *Woodworking machine operators* (9437)

9432 Pulp mill machine operators

Pulp mill machine operators operate and monitor various types of processing machinery and equipment to produce pulp. They are employed by pulp and paper companies.

Example titles

assistant bleacher operator – pulp and paper
assistant digester operator
cook – pulp and paper
cook's first helper – pulp and paper
digester operator – pulp and paper
field operator – pulp and paper

grinderman/woman – pulp and paper
refiner operator – pulp and paper
repulper operator
screenman/woman – pulp and paper
thermomechanical pulp assistant operator
thermomechanical pulp operator

Main duties

Pulp mill machine operators perform some or all of the following duties:

- Operate and monitor screening equipment, bleaching equipment, digesters, mixing tanks, washers, and other pulp processing machinery and equipment to carry out one or more cellulose processing steps
- Observe equipment and machinery panel indicators, gauges, level indicators and other equipment instruments to detect machinery and equipment malfunctions and ensure process steps are carried out according to specifications
- Communicate with pulping control operator to make process adjustments and start up or shut down machinery and equipment as required
- Collect processing samples and conduct titration tests, pH readings, specific density tests and other routine tests on pulp and solutions
- Complete and maintain production reports.

Employment requirements

- Completion of secondary school is required.
- A college diploma in forest products processing or a related subject may be required.
- Completion of several weeks of formal company training and several months of on-the-job training is required.
- Previous experience as a pulp mill labourer within the same company is usually required.
- A certificate in industrial first aid may be required.

Additional information

- There is limited mobility among jobs within this occupational group.
- Progression to pulping control operator is possible with experience.

Classified elsewhere

- *Labourers in wood, pulp and paper processing* (9614)
- *Pulping, papermaking and coating control operators* (9235)
- *Supervisors, forest products processing* (9215)

9433 Papermaking and finishing machine operators

Papermaking and finishing machine operators operate process machinery and equipment and assist papermaking and coating control operators to produce, coat and finish paper. They are employed by pulp and paper companies.

Example titles

assistant coating operator – pulp and paper
balerman/woman – pulp and paper
calender operator – pulp and paper
embossing calender operator – pulp and paper
fourth hand – pulp and paper

graderman/woman – pulp and paper
paper-coating machine operator
paper machine operator
sheeter operator – pulp and paper
winderman/woman – pulp and paper

Main duties

Papermaking and finishing machine operators perform some or all of the following duties:

- Operate and monitor various papermaking and finishing process machinery and equipment to dry, calender, laminate, coat, slit, trim, wind or carry out other papermaking and finishing process steps
- Mount, position and thread paper rolls using a hoist
- Control process machinery using a distributed control system and process computers
- Observe equipment and machinery, panel indicators, gauges, level indicators and other equipment instruments to detect machinery and equipment malfunctions and ensure process steps are carried out according to specifications
- Communicate with and assist papermaking and coating control operators to make process adjustments and to start up or shut down process machines as required
- Inspect paper visually for wrinkles, holes, discolouration, streaks or other defects and take corrective action
- Complete and maintain production reports.

Employment requirements

- Completion of secondary school is required.
- Completion of several weeks of formal company training and several months of on-the-job training is required.
- Previous experience as a labourer within the same company is usually required.
- A certificate in industrial first aid may be required.
- A competency certificate in natural gas may be required.

Additional information

- There is limited mobility among jobs within this occupational group.
- Progression to papermaking and coating control operator occupations is possible with experience.

Classified elsewhere

- *Labourers in wood, pulp and paper processing* (9614)
- Machine operators engaged in fabricating and assembling paper products (in 9435 *Paper converting machine operators*)
- *Pulping, papermaking and coating control operators* (9235)
- *Supervisors, forest products processing* (9215)

9434 Other wood processing machine operators

Machine operators in this unit group operate and tend wood processing equipment and machines to remove bark from logs, produce wood chips, preserve and treat wood, and produce waferboards, particleboards, hardboards, insulation boards, plywood, veneers and similar wood products. They are employed in sawmills, woodrooms of pulp mills, planing mills, wood treatment plants, waferboard plants and other wood processing plants.

Example titles

barker operator
chipper operator
lumber kiln operator
particleboard line operator
plywood panel assembler

timber treating tank operator
veneer dryer tender
veneer lathe operator
waferboard press operator
wood treater

Main duties

Machine operators in this unit group perform some or all of the following duties:

- Operate and tend various wood processing equipment and machines to remove bark, knots and dirt from logs; reduce logs or sawmill waste into wood chips or flakes; stack and band lumber; screen wood chips; and produce waferboards, particleboards, hardboards and insulation boards
- Operate and tend conveyors, lathes, sanding machines and other equipment to peel and slice veneer from logs and log sections, and to glue, press, trim, sand and splice veneer sheets
- Operate and tend kilns, treating tanks and other equipment to dry lumber and other wood products, and to treat chemically and impregnate wood products with preservatives
- Observe equipment, panel indicators, video monitors, and other instruments to detect malfunctions and ensure that processes are operating according to specifications
- Assemble plywood panels and repair plywood and veneer mechanically or manually
- Start up, shut down, set up, adjust and assist in maintaining processing equipment and machines as required
- Complete and maintain production reports.

Employment requirements

- Completion of secondary school is usually required.
- Several months of on-the-job training are provided.

- For lumber kiln operators, particleboard operators and waferboard operators, some combination of college or company courses and up to one year of on-the-job training may be required.
- Previous experience as a labourer in wood processing may be required.

Additional information

- There is some mobility among jobs in this unit group.
- Progression to other positions in the wood, pulp and paper industries is possible with experience.

Classified elsewhere

- *Labourers in wood, pulp and paper processing* (9614)
- *Sawmill machine operators* (9431)
- *Supervisors, forest products processing* (9215)

9435 Paper converting machine operators

Paper converting machine operators operate various machines which fabricate and assemble paper products such as paper bags, containers, boxes, envelopes and similar articles. They are employed by paper products manufacturing companies.

Example titles

box maker operator

carton forming machine operator

core maker – paper converting

envelope maker operator

paper bag machine operator

paper box machine operator

Main duties

Paper converting machine operators perform some or all of the following duties:

- Operate machines which cut, fold, glue or clip paper and cardboard to make boxes, corrugated cartons and other articles
- Operate machines which glue paper to cardboard and cut it into required lengths
- Operate machines which press paper to form drinking cups and other containers
- Operate machines which cut, glue and fold paper to make envelopes or paper bags
- Operate other paper converting machines to form products such as paper tubes, cards, paper towels or diapers
- Clean and lubricate machine and perform other routine machine maintenance
- Set up machines.

Employment requirements

- Completion of secondary school is required by the pulp and paper industry and other large employers.
- Several weeks of on-the-job training are provided.
- Previous experience as a labourer within the same company may be required.

Additional information

- There is some mobility between jobs in this occupational group.

Classified elsewhere

- *Papermaking and finishing machine operators* (9433)
- *Plateless printing equipment operators* (9471)
- *Printing press operators* (7381)

9436 Lumber graders and other wood processing inspectors and graders

Lumber graders and other wood processing inspectors and graders inspect and grade lumber, shingles, veneer, waferboard and similar wood products to identify defects, ensure conformance to company specifications and classify products according to industry standards. They are employed by sawmills, planing mills, wood treatment plants, waferboard plants and other wood processing companies.

Example titles

grader tallyman/woman – wood processing	plywood grader
grader – wood processing	plywood inspector
lumber grader	veneer grader
particleboard grader – wood processing	wood measurer

Main duties

Lumber graders perform some or all of the following duties:

- Examine lumber visually for knots, holes, splits and other defects and sort for further drying, trimming or remanufacturing
- Measure lumber using callipers, gauges and tape measures to ensure specified thickness, length and width
- Classify and sort lumber according to industry standards and stamp lumber to indicate grade, wood type, moisture level and other characteristics
- Tally lumber
- Complete and maintain reports.

Other wood processing inspectors and graders perform some or all of the following duties:

- Inspect plywood panels, veneer sheets, panelboards, shingles and similar wood products visually for knots, holes, splits, straightness and other defects
- Mark defects and sort for repair or reprocessing
- Measure wood products to ensure conformance to specifications using standard measuring instruments
- Grade and label wood products according to quality standards
- Complete and maintain inspection and grading reports.

Employment requirements

- Completion of secondary school is usually required.
- On-the-job training and up to two weeks of classroom training are provided for lumber graders.

- Previous experience as a sawmill machine operator, other wood processing operator or as a labourer in wood processing is usually required for graders and inspectors in this unit group.
- Lumber graders require a lumber grader's licence issued by a provincial lumber association.

Additional information

- There is some mobility between employers processing similar wood products.

Classified elsewhere

- Forest products technologists (in 2211 *Chemical technologists and technicians*)
- Log scalers (in 2223 *Forestry technologists and technicians*)
- Production technologists in sawmills (in 2233 *Industrial engineering and manufacturing technologists and technicians*)
- *Supervisors, forest products processing* (9215)

9437 Woodworking machine operators

Woodworking machine operators set up, program and operate one or more woodworking machines to fabricate or repair wooden parts for furniture, fixtures or other wood products. They are employed in furniture, fixture and other wood products manufacturing establishments.

Example titles

boring machine operator – woodworking
CNC (computer numerically controlled) band saw operator
drill operator – woodworking
drum sander – woodworking
edge bander operator – woodworking

glue machine operator – woodworking
lathe operator – woodworking
planer operator – woodworking
rough mill operator – woodworking
shaper – woodworking
woodworking machine operator

Main duties

Woodworking machine operators perform some or all of the following duties:

- Set up, program and operate one or more computer numerically controlled (CNC) or manual woodworking machines such as saws, moulders, lathes, routers, planers, edgers, pressing machines, shapers, drills and sanders to fabricate or repair wooden parts for furniture, fixtures and other wood products
- Operate gluing machines to glue pieces of wood together or press and affix wood veneer to wood surfaces
- Operate preset special-purpose woodworking machines to fabricate wood products such as coat hangers, mop handles, clothes pins and other products
- Read and interpret specifications or follow verbal instructions
- May clean and lubricate equipment, and replace parts as necessary.

Employment requirements

- Some secondary school education is usually required.
- On-the-job training is usually provided.
- Experience as a labourer in the same company may be required.

Additional information

- Mobility is common among jobs in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Cabinetmakers (7272)*
- *Carpenters (7271)*
- Supervisors of woodworking machine operators (in 9224 *Supervisors, furniture and fixtures manufacturing*)

9441 Textile fibre and yarn, hide and pelt processing machine operators and workers

Textile fibre and yarn processing machine operators and workers operate machines to prepare textile fibres; spin, wind or twist yarn or thread; and bleach, dye or finish yarn, thread, cloth or textile products. They are employed by textile manufacturing companies. Hide and pelt processing machine operators and workers trim, scrape, clean, tan, buff and dye animal hides, pelts or skins to produce leather stock and finished furs. They are employed by leather tanning, fur dressing and leather and fur dyeing establishments.

Example titles

autoclave tender – textile manufacturing
bleaching range operator – textile manufacturing
calender operator – textile manufacturing
carding machine operator – textile manufacturing
coater operator – textile manufacturing
dyeing range operator – textile manufacturing
fabric-printing machine operator

finishing range operator – textile manufacturing
leather buffer – hide and pelt processing
leather stretcher – hide and pelt processing
spinning operator – textile manufacturing
tanner – hide and pelt processing
twisting operator – textile manufacturing
yarn doubler – textile manufacturing

Main duties

Textile fibre and yarn processing machine operators and workers perform some or all of the following duties:

- Operate and feed machines that wash, mix, blend, pick, card, lap, comb or draw fibres and finish yarn
- Operate spinning, twisting, winding or reeling machines
- Operate a variety of machines to bleach, dye, coat or finish fabric, thread, yarn or other textile products
- Mix dyes or chemicals according to established formulas
- Operate machinery to print designs onto textile products
- Oversee work area, examine products for defects and ensure adherence to quality standards
- Investigate machine stoppages and notify supervisor or mechanic in the event of equipment malfunction
- May set up machines and assist with maintenance and minor repairs to machinery.

Hide and pelt processing machine operators and workers perform some or all of the following duties:

- Operate machines or use hand and powered cutting knives to remove unnecessary particles from hides, skins or pelts; shave or polish hides; and shear fur or wool hides to produce pelts with hair of specified or uniform lengths

- Prepare solutions according to pre-established formulas and immerse hides, skins or pelts to clean, dehair, pickle, dye, oil, tan, soften and preserve
- Adjust rotation and mixing action of vats according to state of pelts
- Tint or dye furs to enhance natural shades of fur
- May maintain and repair vats and other machinery.

Employment requirements

- Completion of secondary school may be required.
- On-the-job training is provided for periods up to several months, depending on the complexity of the process and the number of machines operated.

Additional information

- Progression is possible within the group to operate more complex dye ranges and textile printing equipment.
- Progression to supervisory positions is possible with experience for fibre and yarn preparation machine operators and hide and pelt processing machine operators and workers.
- Progression to supervisory positions in textile processing usually requires completion of a college program in textiles, chemistry or a related subject.
- There is some mobility among jobs in this unit group.

9441 Textile fibre and yarn, hide and pelt processing machine operators and workers

Classified elsewhere

- Master dyers and textile colour technologists (in 2211 *Chemical technologists and technicians*)
- Supervisors, textile, fabric, fur and leather products processing and manufacturing (9217)

9442 Weavers, knitters and other fabric making occupations

Operators in this unit group operate machines to process yarn or thread into woven, non-woven and knitted products such as cloth, lace, carpets, rope, industrial fabric, hosiery and knitted garments or to quilt and embroider fabric. This unit group also includes workers who perform activities such as reproducing patterns, drawing-in and tying warps and setting up looms. They are employed by textile companies and by garment and mattress manufacturing companies.

Example titles

carpet weaver
drawer-in – textiles
drawing-in machine operator
embroidery machine operator
hosiery knitter
knitter – textiles
knitting machine operator
loom operator

mattress sewing machine operator
pinning machine operator
quilting machine operator
tufting operator
warp knitting machine tender
warp tier-in
weaver – textiles

Main duties

Operators in this unit group perform some or all of the following duties:

- Set up looms or other processing machines
- Read loom patterns and prepare loom pattern mechanisms for processing
- Operate looms to weave yarn or thread into textile fabrics or products
- Operate machines that produce twine, ropes or nets
- Operate batteries of knitting machines to produce knitted fabric, hosiery, garments or other products
- Operate carpet tufting machines, felt making needle-punch machines and other machines to produce textile products
- Operate large automatic multi-needle machines to embroider material or to sew lengths of several layers of material to make yard goods, quilts or mattress coverings
- Patrol machines and check fabrics or products for defects and to verify efficient operation
- Investigate machine stoppages
- Repair minor mechanical problems such as broken or defective needles
- Notify supervisor or repairers of mechanical malfunctions.

Employment requirements

- On-the-job training is provided for periods up to several months, depending on the complexity of the product, whether equipment set-up and maintenance is done by the operator, and the number of machines operated.
- Previous experience as a labourer in the same company may be required for some operators in this group.

Additional information

- Mobility among employers may be limited by differences in machines and products.
- Progression to textile machinery mechanics and repairers or to supervisory positions is possible with experience and training.

Classified elsewhere

- Craft weavers and knitters (in 5244 *Artisans and craftspersons*)
- *Industrial sewing machine operators* (9446)
- *Supervisors, textile, fabric, fur and leather products processing and manufacturing* (9217)
- Textile machinery mechanics (in 7311 *Construction millwrights and industrial mechanics*)

9445 Fabric, fur and leather cutters

Fabric cutters cut fabric to make parts for garments, linens and other articles. Fur cutters cut fur pelts to make parts for garments and other fur articles. Leather cutters cut leather to make parts for shoes, garments and other leather articles. Fabric cutters are employed by clothing and textile manufacturers and other manufacturers of fabric products. Fur cutters are employed by furriers and fur products manufacturers. Leather cutters are employed by shoe and other leather products manufacturers.

Example titles

clothing cutter
fabric cutter
fur cutter
glove cutter

leather cutter
sample cutter
shoe cutter

Main duties

Fabric cutters perform some or all of the following duties:

- Place patterns on top of layers of fabric and cut fabric following patterns, using electric or manual knives, cutters or computer numerically controlled (CNC) cutting devices
- Adjust cutting technique to type of fabric and style of garment
- May cut fabric samples.

Fur cutters perform some or all of the following duties:

- Cut fur skins in diagonal strips to specified length and shape of pelt using furrier's knives and cutters
- Number pelts to indicate their location on pattern
- May sort or match skins, and may prepare fur samples.

Leather cutters perform some or all of the following duties:

- Select leather and cutting dies for leather goods and shoe parts according to specifications
- Position leather on cutting bed of machine, maximizing usage according to skin grain, skin flaws and skin stretch
- Operate clicker or punch press to stretch leather
- Operate machine to cut leather or cut single leather skins by hand to make leather products
- May cut leather samples.

Employment requirements

- Some secondary school education is usually required.
- Experience as a fabric, fur or leather cutter is required for fabric, fur or leather sample cutters.

- Some on-the-job training is provided for occupations in this unit group.
- Several years of on-the-job training are provided for fur cutters.

Additional information

- There is little mobility among the different kinds of cutters in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Shoe repairers and shoemakers* (6343)
- *Tailors, dressmakers, furriers and milliners* (6342)

9446 Industrial sewing machine operators

Industrial sewing machine operators operate sewing machines to sew fabric, fur, leather or synthetic materials to produce or repair garments and other articles. They are employed in clothing, footwear, textile products, fur products and other manufacturing establishments and by furriers.

Example titles

fur sewing machine operator

leather products sewing machine operator

lining stitcher

sample sewer

serging machine operator

sewing machine operator

shoe sewer

Main duties

Industrial sewing machine operators perform some or all of the following duties:

- Assemble pieces of garments by matching patterns and dye lots
- Operate single, double or multi-needle serging, flat bed felling, banding and other sewing machines, to join sections of garments or other articles into finished products on a piece-work or production basis
- Operate fur sewing machines to join fur pelt strips to required size and shape and join pelts into garment sections or shells
- Operate stitching machines to sew leather parts together for leather garments, handbags, shoes and other leather articles
- Operate serging machines to sew and overcast edges of material simultaneously
- Operate tackers, pocketsetters, buttonhole makers and fusing, hemmer and other machines to perform various operations in the fabrication of garments and other articles
- Examine garments and operate sewing machines, sergers and other machines to repair garments and other articles during the manufacturing process
- Complete production reports
- May perform minor maintenance and repairs on sewing machine.

Employment requirements

- Some secondary school education is usually required.
- Experience operating a sewing machine is usually required.
- On-the-job training may be provided.

Additional information

- Industrial sewing machine operators may progress to supervisory positions with experience.

Classified elsewhere

- *Fabric, fur and leather cutters* (9445)
- *Mattress sewing and embroidery machine operators* (in 9442 *Weavers, knitters and other fabric making occupations*)
- *Shoe repairers and shoemakers* (6343)
- *Supervisors of sewing machine operators* (in 9217 *Supervisors, textile, fabric, fur and leather products processing and manufacturing*)
- *Tailors, dressmakers, furriers and milliners* (6342)

9447 Inspectors and graders, textile, fabric, fur and leather products manufacturing

Inspectors and graders in this unit group inspect and grade textile, fabric, fur and leather products. They are employed by textile companies, leather tanning and fur dressing establishments and garment, fur and leather products manufacturers.

Example titles

cloth inspector

colour grader – textiles

fabric examiner

fibre inspector – textiles

fur grader

fur matcher – fur products manufacturing

garment inspector

hide and pelt processing inspector

leather goods inspector

leather grader

quality control inspector – textiles

shoe inspector

textile grader

textile product sampler

yarn inspector

Main duties

Inspectors and graders in this unit group perform some or all of the following duties:

- Examine natural, synthetic and hybrid textile, fabric, fur and leather garments or products for conformity to quality standards
- Inspect and grade animal hides and pelts according to size, condition and weight
- Verify fit or size of finished garments and products by measuring or comparing products with samples and patterns
- Mark defects, repair minor imperfections, cut excess materiel using scissors, and remove lint and spots using brushes, lint removers and cleaning solutions
- Grade and sort finished products and tag according to size, style and quality
- Record information on products inspected
- May package products.

Employment requirements

- Some secondary school education is usually required.
- On-the-job training is provided.
- Work experience in the manufacturing of the products inspected is usually required.

Additional information

- There is limited mobility among the different inspectors and graders in this unit group.

Classified elsewhere

- *Supervisors, textile, fabric, fur and leather products processing and manufacturing (9217)*

9461 Process control and machine operators, food, beverage and associated products processing

Process control and machine operators in this unit group operate multi-function process control machinery and single-function machines to process and package food, beverage and associated products. They are employed in fruit and vegetable processing plants, dairies, flour mills, bakeries, sugar refineries, meat plants, breweries, leaf tobacco products plants and other food, beverage and associated products processing establishments.

Example titles

bakery machine operator – food and beverage processing
brewhouse operator
canning machine operator
chocolate refiner
cigarette machine tender
citrus juice extractor
control room operator – food and beverage processing
corn sugar refinery operator
dryer tender – tobacco processing

fermenter operator
fruit preserver – food and beverage processing
fryer operator – food and beverage processing
grain-processing machine operator
meat grinder – food and beverage processing
mixer operator, dry foods
pasteurizer operator – food and beverage processing
tobacco blender
winery-press operator

Main duties

Process control operators in this unit group perform some or all of the following duties:

- Operate multi-function process control machinery through control panels, computer terminals or other control systems to grind, extract, mix, blend, cook or otherwise process food products and to bag, box or otherwise package food products
- Operate multi-function process control machinery to grind, extract, mix, blend, distill, ferment or otherwise process alcoholic or non-alcoholic beverages and to bottle, can or otherwise package beverages
- Observe gauges, computer printouts and video monitors to verify specified processing conditions and make adjustments to process variables such as cooking times, ingredient inputs, flow rates and temperature settings
- Maintain shift log of production and other data.

Machine operators in this group perform some or all of the following duties:

- Set up and adjust processing and packaging machines preparatory to operation
- Operate single-function machines to grind, extract, mix, blend, dry, freeze, cook or otherwise process food, beverage or associated products
- Operate single-function machines to box, can or otherwise package food, beverage or associated products

- Check products to ensure conformance to company standards and clear machine blockages as required
- Record production information such as quantity, weight, size, date and type of products packaged
- Perform corrective machine adjustments, clean machines and immediate work areas.

Employment requirements

- Completion of secondary school may be required.
- On-the-job training is provided.
- Experience as a machine operator in food, beverage or associated products processing is usually required for industrial process control operators.
- Experience as a labourer in food, beverage or associated products processing may be required for machine operators.

Additional information

- There is little mobility among the various types of process control operators within the food and beverage processing industry.
- Process control operators may progress to supervisory positions in food and beverage processing with experience.
- There is mobility among machine operators within the food, beverage and associated products processing.

9461 Process control and machine operators, food, beverage and associated products processing

- Machine operators may progress to process control operation or supervisory positions in food, beverage and associated products processing with experience.

Classified elsewhere

- *Bakers* (6332)
- *Butchers, meat cutters and fishmongers – retail and wholesale* (6331)
- *Fish and seafood plant workers* (9463)
- *Industrial butchers and meat cutters, poultry preparers and related workers* (9462)
- *Labourers in fish and seafood processing* (9618)
- *Labourers in food, beverage and associated products processing* (9617)
- *Supervisors, food, beverage and associated products processing* (9213)
- *Testers and graders, food, beverage and associated products processing* (9465)

9462 Industrial butchers and meat cutters, poultry preparers and related workers

Workers in this unit group prepare meat and poultry for further processing, for packaging or for marketing. They are employed in meat and poultry slaughtering, processing and packing establishments.

Example titles

beef boner
ham cutter
industrial butcher
industrial meat cutter

meat trimmer
poultry preparer
slaughterer

Main duties

Workers in this unit group perform some or all of the following duties:

- Industrial butchers slaughter livestock using stunning devices and knives; skin, clean and trim carcasses; remove viscera and other inedible parts from carcasses; split carcasses into smaller portions to facilitate handling; and may slaughter cattle, calves and sheep as prescribed by religious laws.
- Industrial meat cutters cut beef, lamb, pork or veal carcasses or sides or quarters of carcasses into primal cuts for further cutting, processing or packaging; remove bones from meat; and cut meat and poultry into specific cuts for institutional, commercial or other wholesale use.
- Poultry preparers slaughter poultry and remove inedible parts; remove feathers and singe and wash poultry to prepare for further processing or packaging.
- Trimmers remove skin, excess fat, bruises or other blemishes from carcasses or meat portions.

Employment requirements

- Completion of secondary school may be required.
- For industrial meat cutters, completion of a program in industrial meat cutting
or
Experience as an industrial butcher or trimmer is required.
- On-the-job training is provided for industrial butchers, poultry preparers and trimmers.

Additional information

- Industrial meat cutters may progress to inspecting, testing and grading jobs.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Butchers, meat cutters and fishmongers – retail and wholesale (6331)*
- *Meat graders (in 9465 Testers and graders, food, beverage and associated products processing)*
- *Meat inspectors (in 2222 Agricultural and fish products inspectors)*
- *Supervisors, meat packing (in 9213 Supervisors, food, beverage and associated products processing)*

9463 Fish and seafood plant workers

This unit group includes fish and seafood plant machine operators who set up and operate machinery to process and package fish and seafood products, and fish and seafood plant cutters and cleaners who cut, trim and clean fish or seafood by hand. Fish and seafood plant workers are employed in fish and seafood processing plants.

Example titles

fish cake maker	seafood preparer – fish and seafood processing
fish canning machine operator	shellfish processor
fish cleaner and cutter	shellfish shucker
fish cutting machine operator – fish processing	trimmer – fish processing
fish plant worker	

Main duties

Fish and seafood plant machine operators perform some or all of the following duties:

- Set up and operate machines to clean, cut, cook, smoke, brine, dehydrate or otherwise process fish or seafood products
- Set up and operate machines to can, bag, box or otherwise package fish and seafood products
- Check products and packaging for defects and to ensure conformance to company standards and perform corrective machine adjustments as required
- Record production information such as quantity, weight, date and type of products packaged.

Fish and seafood plant cutters and cleaners perform some or all of the following duties:

- Cut, clean and trim fish or seafood prior to marketing or further processing
- Scrape away scales, cut fish, separate fillets and remove scrap parts using knife
- Check fish fillets to determine optimal number and size of fillet sections, cut sections according to specifications and place in container for weighing
- Disjoint and remove meat from lobsters or other crustaceans preparatory to canning or further processing.

Employment requirements

- Some secondary school education may be required.
- On-the-job training is required.

Additional information

- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Labourers in fish and seafood processing* (9618)
- *Supervisors, food, beverage and associated products processing* (9213)

9465 Testers and graders, food, beverage and associated products processing

Testers and graders in this unit group test or grade ingredients and finished food, beverage or associated products to ensure conformance to company standards. They are employed in fruit and vegetable processing plants, dairies, flour mills, bakeries, sugar refineries, fish plants, meat plants, breweries and other food, beverage and associated products processing plants.

Example titles

beef grader
beer tester
cheese grader
fish grader

milk grader
poultry grader
product tester – food and beverage processing
tobacco grader

Main duties

Testers and graders in this unit group perform some or all of the following duties:

- Take samples of products at various stages of processing
- Examine ingredients or finished products by sight, touch, taste and smell or weigh materials to ensure conformance to company standards
- Conduct routine tests for product specifications such as colour, alcohol content, carbonation, moisture content, temperature, fat content and packaging
- Grade or sort raw materials or finished products
- Ensure hygiene and sanitation practices conform to policies and regulations
- Advise supervisors of ingredient or product deficiencies.

Employment requirements

- Completion of secondary school may be required.
- Experience as a machine operator or labourer in the food, beverage and associated products processing industry may be required.
- On-the-job training is usually provided.

Additional information

- There is little mobility among the various types of testers and graders in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Agricultural and fish products inspectors (2222)*
- *Quality control technologists and technicians (in 2211 Chemical technologists and technicians)*
- *Supervisors, food, beverage and associated products processing (9213)*

9471 Plateless printing equipment operators

This unit group includes workers who operate laser printers, computerized high speed colour copiers and other printing machines to print text, illustrations and designs on a wide variety of materials such as paper, plastic, glass, leather, and metal. They are employed in rapid printing services, newspaper and magazine publishing companies, commercial printing companies and in manufacturing and other establishments that have in-house printing facilities.

Example titles

colour copier operator
electronic sign maker operator
embossing-imprinting machine operator
laser printer operator

printing machine operator – printing
quick print machine operator
silk-screen printing machine operator
wallpaper printer

Main duties

Printing machine operators perform some or all of the following duties:

- Review work order to determine job specifications, such as ink colour and quantity required
- Set up and make adjustments to printing machine, such as filling ink or paint reservoirs and loading stock
- Input codes and key in programming data on console keyboard of computerized machines
- Operate and monitor printing machines during print run and make adjustments as required
- Clean machines and replace worn parts.

Employment requirements

- Completion of secondary school may be required.
- Completion of college or other specialized courses in printing may be required.
- On-the-job training is provided.

Classified elsewhere

- *Printing press operators (7381)*
- *Supervisors, printing and related occupations (7303)*
- *Textile printing machine operators (in 9441 Textile fibre and yarn, hide and pelt processing machine operators and workers)*

9472 Camera, platemaking and other prepress occupations

This unit group includes prepress technicians who operate various computer controlled systems to perform prepress activities and workers who operate graphic arts cameras and scanners, assemble film and negatives and prepare, engrave and etch printing plates or cylinders for various types of printing presses. They are employed in firms that specialize in colour graphics or platemaking and cylinder preparation, commercial publishing and printing companies, newspapers, magazines, and in various establishments in the public and private sectors that have in-house printing departments.

Example titles

camera operator – graphic arts
cylinder preparer – printing
dot etcher – printing
file preparation operator
film stripper-assembler
platemaker – printing

pre-flight operator – printing
prepress technician
printing plate engraver
proofmaker
screenmaker
studio-image-processing system operator

Main duties

The following is a summary of main duties for some occupations in this unit group:

- Graphic arts camera operators set up and adjust black and white or colour separation process cameras to convert graphic art and photographs into film for assembly and exposure onto printing plates or cylinders.
- Cylinder preparers grind and polish press cylinders; expose and lay down carbon tissue; and etch or engrave cylinders using hand tools, etching machines, photogravure or laser processes to produce cylinders for gravure presses.
- Film strippers and assemblers assemble and position, either using automated equipment or by hand, pieces of film containing all parts of a printing job to produce flats or composite negatives for preparing printing plates or cylinders.
- Platemakers operate vacuum frames, plate processors and step and repeat machines to produce printing plates for various types of presses.
- Prepress technicians operate various computer-controlled studio systems to perform colour separation, retouching and editing that allow changes to be made to a colour negative for printing purposes, plan page layouts and electronically alter shape, size and positions of illustrations and text.

- Scanner operators operate computerized scanning machines or digital cameras to make colour separations and corrections from colour copy or transparencies for use in preparing film, digital files, printing plates or cylinders.
- Proofmakers operate computerized equipment to prepare film, laser or dylux proofs for quality control purposes or for customers' review.

Employment requirements

- Completion of secondary school is required.
- Completion of a college program in graphic arts technology
or
A combination of on-the-job training and specialized college, industry or other courses is required.
- Trade certification for some occupations in this group is available, but voluntary, in Ontario, Alberta, the Northwest Territories and Nunavut.

Classified elsewhere

- Desktop publishing operators (in 1423 *Desktop publishing operators and related occupations*)
- *Graphic arts technicians* (5223)
- *Graphic designers and illustrators* (5241)
- *Photographic and film processors* (9474)
- *Supervisors, printing and related occupations* (7303)

9473 Binding and finishing machine operators

Binding and finishing machine operators set up, operate or oversee the operation of machines, equipment or computerized units that bind and finish printed material. Workers who perform finishing operations in the paper, carton and packaging industries, as well as those who encode and stamp plastic cards, are included in this unit group. They are employed by binderies, commercial printing companies, newspapers, magazines, and other publishing companies, and establishments in both the public and private sectors that have in-house printing, binding and finishing departments.

Example titles

binder and finisher

binder – printing

bindery operator

bookbinder, machine

bookbinding machine operator

Cerlox binder operator

cutter operator – printing

finishing machine operator – printing

foil stamper – printing

gathering machine set-up operator – printing

gold leaf stamper

laminating machine operator

perforator operator – printing

stitcher operator – printing

Main duties

Binding and finishing machine operators perform some or all of the following duties:

- Set up and operate specialized equipment and machines that cut, fold, gather and bind or finish brochures, pamphlets, business forms, magazines, books and other printed material
- Set up and operate specialized equipment and machines that die cut, emboss, imprint, laminate, heat stamp and perform other finishing operations on printed material
- Perform pre-production runs of binding or finishing jobs to verify output and to ensure that product specifications are met
- Operate automatic and semi-automatic equipment and machines to bind or finish print material according to specifications
- Pack, weigh and stack bound and finished products on pallet for shipment
- May repair and rebind damaged or worn books.

Employment requirements

- Completion of secondary school is usually required.
- Completion of a college program in graphic arts technology
or
A combination of on-the-job training and specialized college, industry or other courses is usually required.

Additional information

- There is some mobility among various types of binding and finishing machine operator occupations in this group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Feeders, loaders, offbearers and similar occupations (in 9619 *Other labourers in processing, manufacturing and utilities*)
- Hand bookbinders (in 5244 *Artisans and craftspersons*)
- *Printing press operators (7381)*
- *Supervisors, printing and related occupations (7303)*

9474 Photographic and film processors

Photographic and film processors process and finish still photographic film and motion picture film. They are employed in film processing laboratories and retail photofinishing establishments.

Example titles

darkroom technician

film developer

film printing machine operator

film processor

photofinisher

photograph developer

photographic processor

photograph inspector – photographic processing

Main duties

Photographic and film processors perform some or all of the following duties:

- Operate equipment to develop negatives and slides, and to print black and white and colour photographs
- Operate photographic enlarging equipment to produce prints and enlargements from negatives
- Operate equipment to develop motion picture film
- Tend automatic equipment in retail establishments to develop colour negatives, prints and slides
- Operate equipment to transfer film to video tape
- Retouch photographic negatives or original prints to correct defects
- Splice film and mount film on reels
- Measure and mix chemicals required for processing
- Inspect rolls of photographic prints for conformance to specifications; or motion picture film to detect defects in developing and printing.

Employment requirements

- Completion of secondary school is usually required.
- For employment in film processing laboratories, completion of a college or other specialized photography program
or
Extensive related experience is required.
- For employment as a film printing machine operator in retail outlets, on-the-job training is provided.

Additional information

- There is mobility among occupations within laboratory processing operations.
- Progression is possible from automatic machine tenders in retail establishments to laboratory processing occupations.

Classified elsewhere

- Film strippers and assemblers and negative retouchers in the printing or graphic arts industry (in 9472 *Camera, platemaking and other prepress occupations*)
- Supervisors of photographic and film processors (in 7303 *Supervisors, printing and related occupations*)

9521 Aircraft assemblers and aircraft assembly inspectors

Aircraft assemblers assemble, fit and install prefabricated parts to manufacture fixed wing or rotary wing aircraft or aircraft subassemblies. Aircraft assembly inspectors inspect aircraft assemblies for adherence to engineering specifications. They are employed by aircraft and aircraft subassembly manufacturers.

Example titles

aircraft assembler
aircraft inspector, assembly
airframe assembler
bench and structural assembler

bench fitter mechanic – aircraft assembly
rigger – aircraft assembly
wing tank mechanic – aircraft assembly

Main duties

Aircraft assemblers perform some or all of the following duties:

- Read and interpret aircraft assembly diagrams
- Assemble and fit pre-fabricated parts to form subassemblies, working at benches or directly on an aircraft structure
- Assemble, fit and install pre-fabricated parts and subassemblies such as aircraft skins, flight controls, rigging, hydraulics and other mechanical systems.

Aircraft assembly inspectors perform some or all of the following duties:

- Inspect aircraft assemblies, using measuring and testing equipment, for adherence to engineering specifications
- Inspect assemblies for alignment, symmetry, dimensions, fit and quality of workmanship
- Complete detailed inspection documentation.

Employment requirements

- Completion of secondary school is required.
- Completion of a college or other program in aviation or aeronautical technology, with emphasis in aircraft manufacturing, may be required.
- Aircraft assemblers receive several months of on-the-job and classroom training.
- Aircraft assembly inspectors require experience as an aircraft assembler.

Additional information

- Aircraft assemblers and assembly inspectors may progress to supervisory positions with experience.

Classified elsewhere

- Aircraft engine assemblers (in 7316 *Machine fitters*)
- *Aircraft mechanics and aircraft inspectors* (7315)
- Aircraft painters (in 9536 *Industrial painters, coaters and metal finishing process operators*)
- Avionics and aircraft electronic equipment installers (in 2244 *Aircraft instrument, electrical and avionics mechanics, technicians and inspectors*)
- Supervisors of aircraft assemblers or inspectors (in 9226 *Supervisors, other mechanical and metal products manufacturing*)

9522 Motor vehicle assemblers, inspectors and testers

Motor vehicle assemblers assemble and install prefabricated motor vehicle parts and components to form subassemblies and finished motor vehicles. Motor vehicle inspectors and testers inspect and test parts, subassemblies, accessories and finished products to ensure proper performance and conformity to quality standards. They are employed in plants which manufacture automobiles, vans and light trucks.

Example titles

assembly inspector – motor vehicle manufacturing
auto assembly worker
body assembler – motor vehicle manufacturing
car assembler
chassis inspector – motor vehicle manufacturing
door fitter

motor vehicle assembler
sport utility vehicle (SUV) assembler
test driver – automobile assembly
transmission installer
van assembler

Main duties

Motor vehicle assemblers perform some or all of the following duties:

- Read electrical schematics, blueprints and other technical diagrams
- Bolt, screw, clip, weld, solder or otherwise fasten motor vehicle parts and components together using hand and power tools and equipment
- Operate and tend automated assembling equipment such as robotic and fixed automation equipment
- Connect cables, tubes and wires to complete assemblies and installations
- Position and install parts, subassemblies and accessories such as engines, transmissions, door panels or instrument panels using hand and power tools and other aids like overhead hoists
- Fit and adjust parts such as doors, hoods and trunk lids.

Motor vehicle inspectors and testers perform some or all of the following duties:

- Check motor vehicle exterior priming and colour coats, sealers and glazers, and mark, record and report defects to be repaired
- Test motor vehicle electrical assemblies, equipment and wiring for proper performance using testing devices such as meters, analyzers and timing lights
- Inspect auto parts and fully assembled motor vehicles for defects and to ensure that previously noted defects have been corrected
- Drive and test motor vehicles on roll testing device to ensure that transmission, axle, engine and brakes function properly.

Employment requirements

- Completion of secondary school is usually required.
- Skills required for occupations in this unit group are normally acquired through on-the-job training.

Additional information

- Mobility is possible to jobs in the same production department.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Assemblers of heavy trucks, trailers and buses (in 9526 *Mechanical assemblers and inspectors*)
- Automobile assembly painters and coaters (in 9536 *Industrial painters, coaters and metal finishing process operators*)
- Automotive engine, clutch and transmission assemblers (in 9526 *Mechanical assemblers and inspectors*)
- Mechanical repairers, automobile manufacturing (in 7321 *Automotive service technicians, truck and bus mechanics and mechanical repairers*)
- *Supervisors, motor vehicle assembling* (9221)

9523 Electronics assemblers, fabricators, inspectors and testers

Electronics assemblers and fabricators assemble and fabricate electronic equipment, parts and components. Electronics inspectors and testers inspect and test electronic and electromechanical assemblies, subassemblies, parts and components to ensure conformance to prescribed standards. They are employed in electronics manufacturing plants.

Example titles

capacitor assembler
circuit board assembler
component inserting machine operator
crystal final tester
electronics assembler
electronics inspector – electronic equipment
manufacturing
finished product inspector – electronic equipment
manufacturing

inspector, printed circuit board (PCB) assembly
precision instrument assembler – electronic
equipment manufacturing
surface mount assembler
tester, electronic components
through-hole assembler
wafer fabrication operator
wave soldering machine operator
wiring and assembly operator

Main duties

Electronics assemblers perform some or all of the following duties:

- Solder and manually assemble various electronic components such as resistors, diodes, transistors, capacitors, integrated circuits, switches, wires and other electronic parts to designated locations on printed circuit boards
- Assemble microcircuits requiring fine hand assembly, the use of microscopes and adherence to cleanroom procedures
- Install, mount, fasten, align and adjust parts, components, wiring and harnesses to subassemblies and assemblies using hand and small power tools
- Operate automatic and semi-automatic machines to position, solder and clean prescribed components on printed circuit boards
- May replace defective components and repair and overhaul older devices.

Electronics fabricators perform some or all of the following duties:

- Operate and monitor process equipment including automatic and semi-automatic machines to fabricate electronic components, solder, clean, seal and stamp components and perform other process operations as specified
- Set up process equipment and adhere to cleanroom procedures as required.

Electronics inspectors perform some or all of the following duties:

- Inspect electronic components and assemblies to ensure correct component selection and placement, wiring and soldering quality, proper pin insertions, location and diameter of plated holes, breaks in circuitry and line spacing in printed circuit board and other specified requirements while products are being assembled or fabricated
- Check final assembly for finish, labelling and packaging methods
- Check mechanical dimensions and perform "go-no-go" electrical tests
- Identify and mark acceptable and defective assemblies and return faulty assemblies to production for repair
- Collect, record and summarize inspection results
- Investigate equipment malfunction and instruct on proper operation.

Electronics testers perform some or all of the following duties:

- Operate various test equipment and tools to perform simple electrical and continuity testing of electronic components, parts and systems
 - Set up and operate automatic testing equipment to locate circuit and wiring faults, shorts and component defects
 - Compare test results to specifications and set parts or products aside for repair or replace components or parts as indicated by test equipment
 - May conduct life tests (burn-ins) on components, subassemblies and assemblies
-

9523 Electronics assemblers, fabricators, inspectors and testers

- Maintain test result reports.

Employment requirements

- Completion of secondary school is usually required for electronics assemblers, fabricators, inspectors and testers.
- On-the-job training is usually provided for occupations in this unit group.
- A two-year apprenticeship and voluntary trade certification is available for electronics assemblers in Ontario and Saskatchewan.
- Electronics testers may require post-secondary courses in basic electronic theory, testing techniques and testing equipment.
- Electronics inspectors and testers may require experience as an electronics assembler or component fabricator.

Additional information

- Progression from electronics assembler or component fabricator to electronics inspector or tester is possible with additional training and experience.

Classified elsewhere

- *Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing (9524)*
- *Electrical and electronics engineering technologists and technicians (2241)*
- *Electronic service technicians (household and business equipment) (2242)*
- *Supervisors, electronics manufacturing (9222)*

9524 Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing

Assemblers in this unit group assemble prefabricated parts to produce household, commercial and industrial appliances and equipment. Inspectors in this unit group inspect and test assembled products. Workers who set up and prepare assembly lines for operation are included in this unit group. Workers in this unit group are employed by electrical appliance and electrical equipment manufacturing companies.

Example titles

assembler, electrical appliances
circuit breaker assembler
clothes dryer assembler, electric
coffee maker assembler
dishwasher assembler
hair dryer assembler

inspector, electrical appliance assembly
inspector, electrical controls assembly
lawn mower assembler, electric
production assembler, electrical equipment
refrigerator assembler, electric

Main duties

Assemblers in this unit group perform some or all of the following duties:

- Assemble prefabricated parts on an assembly line, or at work benches using screw guns and other hand and power tools
- Assemble small and large household electrical appliances such as coffeemakers, toasters, vacuum cleaners, lawnmowers, refrigerators and dishwashers
- Assemble small transformers, small electrical motors and transmissions used in appliances or other electrical products
- Assemble circuit breakers, switches or other electrical control equipment and position and fasten components such as springs, toggles or other parts into assembly casings
- Wind coils and armatures for small electric motors and transformers
- Perform minor repairs to products rejected from production assembly line
- Set up assembly line with materials and supplies required for production, and set up and adjust production tools.

Inspectors and testers in this unit group perform some or all of the following duties:

- Check products at different stages of production for visual defects and faulty electrical and mechanical connections, or operate automatic or other testing equipment to ensure product quality
- Identify and mark acceptable and defective assemblies and return faulty assemblies to production for repair
- Collect, record and summarize inspection results.

Employment requirements

- Some secondary school education is usually required.
- On-the-job training is provided.
- Inspectors may require experience as an assembler in the same company.
- Some types of inspectors may require completion of a college program in electronics.

Additional information

- With experience assemblers may progress to inspecting and testing positions.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Appliance servicers and repairers (7332)*
- Assemblers of electronic products, such as television, radios and computers (in 9523 *Electronics assemblers, fabricators, inspectors and testers*)
- Assemblers of heavy-duty electrical motors, transformers and related equipment (in 9525 *Assemblers, fabricators and inspectors, industrial electrical motors and transformers*)
- *Electrical mechanics (7333)*
- *Machine operators and inspectors, electrical apparatus manufacturing (9527)*
- *Supervisors, electrical products manufacturing (9223)*

9525 Assemblers, fabricators and inspectors, industrial electrical motors and transformers

This unit group includes workers who assemble, fabricate, fit, wire and inspect heavy-duty industrial electrical equipment. They are employed by manufacturers of industrial electric motors, transformers, control equipment, railway locomotives, transit vehicles and other heavy electrical equipment.

Example titles

assembler and wirer, motors and generators
assembler, switchgear and control panel
coil winder, transformer
control panel assembler
electrical fitter
fitter-assembler, AC (alternating current) and DC (direct current) motors
inspector and tester, AC and DC motors
inspector, electrical control panel

panelboard assembler – industrial electrical equipment
power transformer assembler
switchgear fitter-wirer
transformer inspector
transformer winder
winder, AC and DC armatures
wirer, electrical switchgear panels

Main duties

Assemblers in this unit group perform some or all of the following duties:

- Assemble and fit metal and other prefabricated parts to close tolerances according to blueprints to build heavy-duty electric motors or transformers
- Assemble stators or armatures for heavy-duty electric motors; compress steel laminations to build transformer cores; assemble windings into core using overhead cranes and make electrical connections using crimping, brazing and soldering equipment
- Assemble and fit electrical motor or transformer auxiliary equipment such as bushings, tap changes, conduit boxes, heating devices, protective equipment and cooling equipment
- Set up and adjust production machinery and equipment, such as coil winding machines, for the manufacture of heavy-duty electrical equipment
- May perform basic tests on electric motors.

Electrical fitters and wirers perform some or all of the following duties:

- Interpret engineering drawings, electrical schematics and blueprints
- Fit motor starters, contactors, capacitors, circuit breakers, voltage regulators, printed circuit boards or other electrical control devices into switchboards and panelboards to produce automated processing control equipment, electrical distribution panels, or other industrial electrical control equipment
- Wire electrical connections for switchboards and panelboards

- Assemble panelboard and switchboard cabinets and install bus bars used to carry heavy electrical current
- May operate metal fabricating equipment to fabricate or modify bus bars.

Inspectors in this unit group perform some or all of the following duties:

- Monitor production and troubleshoot production problems
- Check final assembly of electric motors, transformers or control equipment for adherence to quality control standards
- Collect, record and summarize inspection results.

Employment requirements

- Completion of secondary school is usually required.
- College courses in electricity or electro-technology may be required.
- Several years of on-the-job training are usually provided.
- Set-up persons, inspectors and leadhands in this unit group may require experience as an assembler, fitter or wirer in the same company.

Additional information

- Progression to supervisory positions is possible with experience.

9525 Assemblers, fabricators and inspectors, industrial electrical motors and transformers

Classified elsewhere

- *Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing (9524)*
- *Electrical mechanics (7333)*
- Electrical technicians who test heavy-duty electric motors, transformers or other industrial electrical equipment (in 2241 *Electrical and electronics engineering technologists and technicians*)
- *Supervisors, electrical products manufacturing (9223)*

9526 Mechanical assemblers and inspectors

Assemblers in this unit group assemble a wide variety of mechanical products such as trucks, buses, snowmobiles, garden tractors, automotive engines, transmissions, outboard motors, gearboxes, hydraulic pumps and sewing machines. Inspectors in this unit group check and inspect subassemblies and finished products to ensure proper quality and product specifications. They are employed by machinery and transportation equipment manufacturers and by other manufacturing companies.

Example titles

automotive engine assembler
garden machinery assembler
gearbox assembler
gearcase assembler
hydraulic hoist assembler
mechanical assembler
sewing machine assembler

snowmobile assembler
tractor assembler
transmission assembler
truck assembler
truck assembly inspector
truck trailer assembler
vending machine assembler

Main duties

Assemblers in this unit group perform some or all of the following duties:

- Assemble, fit and install prefabricated parts to form subassemblies or finish products using hand and power tools
- Position, align and adjust parts for proper fit and assembly and connect cables, tubes and wires
- Fasten parts together using bolting and riveting equipment or other fastening and joining techniques
- Operate or tend automated assembling equipment, such as robotics and fixed automation equipment
- Operate small cranes to transport or position larger parts as required.

Inspectors in this unit group perform some or all of the following duties:

- Check subassemblies and inspect finished products for proper quality
- Check mechanical assemblies and subassemblies for alignment and proper functioning
- Test and check electrical assemblies and wiring for proper connections
- Perform minor adjustments and repairs.

Employment requirements

- Some secondary school education is required.
- Up to two years of on-the-job training are provided.
- Experience as a mechanical assembler may be required for inspectors in this unit group.

Additional information

- There is little or no mobility among the various assemblers and inspectors in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Aircraft assemblers and aircraft assembly inspectors (9521)*
- Industrial machinery, heavy equipment and aircraft engine assemblers (in 7316 *Machine fitters*)
- *Motor vehicle assemblers, inspectors and testers (9522)*
- Supervisors of mechanical assemblers and inspectors (in 9226 *Supervisors, other mechanical and metal products manufacturing*)

9527 Machine operators and inspectors, electrical apparatus manufacturing

Machine operators in this unit group operate machinery or equipment to fabricate complete products or parts for use in the assembly of electrical appliances and equipment, and electrical apparatus, such as batteries, fuses and plugs. Inspectors in this unit group inspect and test completed parts and production items. Workers in this unit group are employed by electrical appliance and electrical equipment manufacturing companies.

Example titles

assembly machine setter – electrical equipment manufacturing

dry cell charge machine operator

epoxy coating machine operator

inspector, electrical dry battery

inspector, electrical light bulbs

machine operator – electrical equipment manufacturing

machine set-up operator – electrical appliance manufacturing

production line battery repairer – electrical equipment manufacturing

Main duties

Machine operators in this unit group perform some or all of the following duties:

- Operate machinery to assemble, test or package dry cell batteries
- Position lead acid storage batteries on assembly line and insert battery contents into casing
- Operate machinery, such as pasting and stacking machines, to fabricate plates for lead acid storage batteries
- Load machinery with glass tubes, bulbs and other parts used to produce incandescent, fluorescent and other types of light bulbs and tubes, and remove and pack finished product
- Operate or feed machinery and equipment to produce electrical wiring devices such as fuses, plugs, caps, sockets, connectors and switches
- Operate equipment to apply protective coatings to items such as freezer cabinets, small electric motors or transformer assemblies
- Perform minor repairs to items rejected from production line
- Set up and adjust production machinery and equipment for operation.

Inspectors and testers in this unit group perform some or all of the following duties:

- Check in-process and completed production items for visual or mechanical defects or operate testing equipment to maintain quality of products
- Identify and mark acceptable and defective assemblies and return faulty assemblies to production for repair
- Collect, record and summarize inspection results.

Employment requirements

- Some secondary school education is usually required.
- On-the-job training is provided.
- Inspectors may require experience as an assembler in the same company.

Additional information

- With experience, machine operators may progress to inspecting and testing positions.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing (9524)*
- *Supervisors, electrical products manufacturing (9223)*

9531 Boat assemblers and inspectors

Boat assemblers assemble wooden, fibreglass and metal boats, such as sailboats, motorboats, canoes and cabin cruisers. Boat inspectors check assembled boats to ensure proper product quality. They are employed by boat and marine craft manufacturing companies.

Example titles

aluminum boat assembler
boat assembler
boat inspector
canoe assembler

fibreglass boat assembler
motorboat assembler
sailboat assembler

Main duties

Boat assemblers perform some or all of the following duties:

- Cut, shape and join timber pieces or assemble pre-cut timber pieces to make a wooden boat using hand and power tools
- Assemble prefabricated parts and sections of fibreglass, metal or other material to form complete boat
- Caulk decks and hulls using caulking gun
- Install trims, rudders, seats, engine mounts and other accessories using hand tools
- May repair boats.

Boat inspectors perform some or all of the following duties:

- Inspect assembled boats for defects and conformance to quality standards
- Mark defects to be repaired
- Make minor adjustments and repairs
- Record information on products inspected.

Employment requirements

- Some secondary school education may be required.
- Completion of college or other courses in boat building may be required.
- On-the-job training is provided.
- Experience as a helper or labourer in the same company may be required for boat assemblers.
- Experience as a boat assembler may be required for boat inspectors.

Additional information

- Progression to supervisory positions is possible with experience.

Classified elsewhere

- Builders of customized wooden boats and wooden shipwrights (in *7271 Carpenters*)
- Canoe builders (in *5244 Artisans and craftspersons*)
- Helpers and labourers in boat assembly (in *9619 Other labourers in processing, manufacturing and utilities*)
- Marine repair technicians (in *7384 Other trades and related occupations, n.e.c.*)
- Supervisors of boat assemblers and inspectors (in *9227 Supervisors, other products manufacturing and assembly*)
- Workers who fabricate, assemble and fit steel and other metal components to build ships (in *7235 Structural metal and platework fabricators and fitters*)

9532 Furniture and fixture assemblers and inspectors

Assemblers in this unit group assemble parts to form subassemblies or complete articles of furniture and fixtures. Inspectors in this unit group inspect furniture and fixture subassemblies and finished products to ensure product quality. They are employed by furniture manufacturing companies.

Example titles

assembly inspector – furniture manufacturing
chair assembler
desk assembler
fixture assembler
furniture assembler

furniture inspector
metal furniture assembler
table assembler
wood furniture assembler

Main duties

Assemblers in this unit group perform some or all of the following duties:

- Prepare, sand and trim wooden furniture and fixture parts using hand and power tools
- Assemble wooden or metal furniture and fixture parts to form subassemblies and complete articles using hand and power tools
- Assemble a combination of parts made of wood, metal, plastic, cane or other materials to form subassemblies or complete furniture articles
- Reinforce assembled furniture and fixtures with dowels or other supports
- Install hardware such as hinges or clasps on furniture and fixtures.

Inspectors in this unit group perform some or all of the following duties:

- Inspect furniture and fixture subassemblies and finished products for conformance to quality standards
- Mark defective parts or products for repair
- Make minor adjustments and repairs
- Record information on products inspected.

Employment requirements

- Some secondary school education may be required.
- On-the-job training is provided.
- Experience as a labourer in the same company may be required.

Additional information

- Mobility is possible between jobs in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Furniture finishers and refinishers (9534)*
- *Other wood products assemblers and inspectors (9533)*
- Supervisors of workers in this unit group (in *9224 Supervisors, furniture and fixtures manufacturing*)
- *Woodworking machine operators (9437)*

9533 Other wood products assemblers and inspectors

Assemblers in this unit group assemble a variety of wood products and millwork, such as window sashes and doors. Inspectors in this unit group inspect wood products to ensure product quality. They are employed by establishments engaged in manufacturing a variety of wood and millwork products.

Example titles

bench assembler, wood products
crate builder, wood
manufactured housing production worker
millwork assembler
pallet maker, wood
prefabricated housing assembler

sash and door inspector
wooden box assembler
wooden door maker
wood products assembler
wood products assembling inspector

Main duties

Assemblers in this unit group perform some or all of the following duties:

- Read production orders and diagrams
- Trim and sand joints, moulding, or other wooden parts to be assembled using hand and power tools
- Assemble wood products such as window sashes, doors, boxes, pallets, ladders and barrels using glue, staples, screws, bolts or other fasteners
- Assemble door panels, trusses, modular components and other parts on assembly line to make prefabricated housing using jigs, overhead cranes and hand and power tools
- Reinforce assembled products with dowelling or other supports, and install hardware such as knobs and hinges
- May assist with maintenance of machinery.

Inspectors in this unit group perform some or all of the following duties:

- Inspect wood products for conformance to quality standards
- Mark defective parts or products for repair
- Make minor adjustments and repairs
- Record information on products inspected.

Employment requirements

- Some secondary school education may be required.
- Experience as a labourer in the same company may be required.
- Inspectors may require related assembly experience.
- On-the-job training is provided.

Classified elsewhere

- *Cabinetmakers* (7272)
- *Carpenters* (7271)
- *Furniture and fixture assemblers and inspectors* (9532)
- *Labourers in wood products manufacturing* (in 9619 *Other labourers in processing, manufacturing and utilities*)
- *Supervisors, other products manufacturing and assembly* (9227)
- *Woodworking machine operators* (9437)

9534 Furniture finishers and refinishers

Furniture finishers finish new wood or metal furniture to specified colour and finish. They are employed in furniture manufacturing plants, retail furniture stores or refinishing and repair shops. Furniture refinishers refinish repaired, used or old furniture. They are employed in furniture refinishing and repair shops or they may be self-employed.

Example titles

finishing machine operator – furniture
manufacturing
furniture finisher
furniture refinisher
furniture stainer
furniture stripper

polisher, furniture – furniture finishing
touch-up person – furniture finishing
trimmer – furniture finishing
wash-off operator – furniture finishing
wood finisher – furniture finishing and refinishing

Main duties

Furniture finishers perform some or all of the following duties:

- Set up and operate finishing machines or finish furniture by hand
- Stain or finish wood to specified colour with stains, paints or other materials using brush or spray gun
- Apply toners, highlights, glazes or shaders to obtain desired finish
- Apply lacquer or other sealers
- Decorate wood surfaces or mark surfaces to create antique or other effects using hand and power tools
- Clean and polish furniture
- Sand metal furniture to prepare for finish and spray with paint or other materials.

Furniture refinishers perform some or all of the following duties:

- Strip old finish from wood surfaces using steel wool, sandpaper and solvents
- Smooth gouges with wood filler and sand wood
- Match colours to obtain original finish and apply appropriate finish to stripped wood
- Polish and wax refinished surfaces
- Sand or grind metal surfaces to prepare for coating, and paint metal surfaces using electrostatic method, spray gun or other painting equipment
- Make minor repairs to furniture
- May perform duties of furniture finisher.

Employment requirements

- Some secondary school education is required.

- College, high school or industry courses in furniture finishing or refinishing may be required.
- On-the-job training is provided.

Classified elsewhere

- *Painters and decorators (except interior decorators)* (7294)
- *Upholsterers* (6345)

9535 Plastic products assemblers, finishers and inspectors

This unit group includes workers who assemble, finish and inspect plastic parts and finished products. They are employed by plastic products manufacturing companies and plastic parts divisions of aircraft or other manufacturing companies.

Example titles

fibreglass laminator	plastics inspector
plastic bottle trimmer	plastics trimmer
plastic parts assembler	plastic tank assembler
plastic products fabricator	skylight assembler – plastic products
plastic products inspector and tester	manufacturing
plastics assembler	

Main duties

Plastic products assemblers and finishers perform some or all of the following duties:

- Operate machines or equipment, or use hand tools to cut, shape, splice and fit plastic materials to form parts and assemblies
- Assemble composite materials on patterns to form parts and assemblies using bonding agents
- Operate spray-gun unit to apply resin mixtures to metal or wooden mould to form plastic products
- Load and operate autoclave oven to cure and bond plastic and composite parts and subassemblies
- Operate finishing equipment to trim, grind or buff plastic products into final form.

Plastic products inspectors perform some or all of the following duties:

- Inspect manufactured plastic products for defects and conformance to specifications and quality standards, visually or using instruments
- Affix seals or tags to approved plastic products and mark and reroute defective products for repair or recycle
- Prepare reports on products inspected
- Make minor adjustments and repairs to products
- May train or assist in training new workers.

Employment requirements

- Some secondary school education is usually required.
- Experience as a labourer in the same company may be required for assemblers, finishers and inspectors.
- On-the-job training is provided.

Additional information

- Mobility among the various workers in this unit group is possible.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Labourers in rubber and plastic products manufacturing* (9615)
- *Plastics processing machine operators* (9422)
- *Rubber processing machine operators and related workers* (9423)
- *Supervisors, plastic and rubber products manufacturing* (9214)

9536 Industrial painters, coaters and metal finishing process operators

Industrial painters and coaters operate and tend machines or use brushes and spray equipment to apply paint, enamel, lacquer or other non-metallic protective and decorative coatings to surfaces of various products. Metal finishing process operators operate machines or equipment to deposit metallized substances on workpieces and surfaces to provide decorative, protective and restorative coatings. These workers are employed by manufacturing companies and custom refinishing, coating and plating shops.

Example titles

automatic paint-sprayer operator
automobile painter – motor vehicle manufacturing
aviation painter
ceramic and enamel refinisher
coating machine operator – industrial painting and coating
electrogalvanizing machine operator
enameller – ship and boat building

hot-dip galvanizer – metal plating
industrial products painter
metal coater operator
metal electroplater
painter, assembly line
production painter-finisher
spray paint operator

Main duties

Industrial painters and coaters perform some or all of the following duties:

- Select appropriate paint or mix paints using automated paint mixing equipment according to a pre-determined formula
- Operate or tend equipment to clean, wash, strip, sand, remove corrosion, fill dents or otherwise prepare items for application of paint, lacquer or other protective or decorative coatings
- Operate or tend automated spray paint, dip or flow coating equipment or other mechanized painting or product coating application equipment
- Operate hand-held spray guns to spray paint or coat stationary items or items on moving conveyor system with protective or decorative coatings
- Paint small items and apply touch-ups using paint brushes
- Clean and maintain painting and coating, ventilation, compressed air and personal protective equipment
- May prepare and apply stencils, computer-generated decals or other decorative items on finished products.

Metal finishing process operators perform some or all of the following duties:

- Prepare and mix metallizing solutions according to formulas or specifications

- Operate or tend equipment to clean, degrease, pickle and etch metal and non-metal surfaces to prepare workpieces with desired surface characteristics
- Tend automatic metal coating machines which convey objects through a series of cleaning, rinsing and plating solutions
- Operate and control electroplating equipment to coat metal and other workpieces
- Operate hot-dip metal plating equipment to galvanize metal and other workpieces
- Operate spray equipment to build up worn or damaged parts or to bond protective or decorative coatings on various objects
- Check proper thickness of plating using micrometers, calipers or other devices
- May operate equipment to polish metallic surfaces of products
- May tend ovens which cure metal coating.

Employment requirements

- Some secondary school education is usually required.
- Some experience in operating production machinery or equipment may be required.
- Several months of on-the-job training are usually provided.
- Some industrial painters, such as aviation painters, may require specialized training and certification or college courses.

Additional information

- Progression to supervisory positions is possible with experience.

9536 Industrial painters, coaters and metal finishing process operators

Classified elsewhere

- Autobody repair painters or repainters (in 7322 *Motor vehicle body repairers*)
- Construction painters (in 7294 *Painters and decorators (except interior decorators)*)
- Etchers (in 9417 *Machining tool operators*)
- Furniture finishers and refinishers (9534)
- Supervisors of non-automotive metal finishing workers (in 9226 *Supervisors, other mechanical and metal products manufacturing*)
- Supervisors of paint department workers (in 9214 *Supervisors, plastic and rubber products manufacturing*)
- Supervisors of paint department workers (in 9221 *Supervisors, motor vehicle assembling*)

9537 Other products assemblers, finishers and inspectors

This unit group includes assemblers, finishers and inspectors, not elsewhere classified, who assemble, finish and inspect components or products of various materials, such as jewellery, silverware, buttons, pencils, non-prescription lenses, brushes, clocks and watches, musical instruments, sporting goods, toys and other miscellaneous products. They are employed by a wide variety of manufacturing companies.

Example titles

antenna assembler
bicycle assembler
brush making machine operator
button machine operator
camera assembly inspector
crayon making machine tender
eyeglass frame assembler
golf club assembler
jewellery annealer
jewellery inspector

lampshade assembler
piano assembly inspector
prism maker operator
skate press operator
sports ball moulder
stuffing machine tender
tennis ball maker operator
toy inspector
Venetian blind assembler
watch assembler

Main duties

Assemblers and finishers in this unit group perform some or all of the following duties:

- Operate machines or use hand tools to cut, shape and fit materials to form parts and to fabricate components or products
- Load supplies into hoppers of dispensing units or manually align, feed or otherwise place materials into machines
- Screw, clip, glue, bond, weld or otherwise assemble parts and components to form final products
- Sand, trim, grind or clean products into final form using hand tools
- Clean work stations and remove scraps, dust, shavings or other by-products from machinery and surrounding areas
- May make routine changes of dies, nozzles or other machinery attachments as required.

Inspectors in this unit group perform some or all of the following duties:

- Check manufactured items for defects and for conformance to specifications, visually or using sample models and instruments
- Affix seals or tags to approved items and return defective products for repair or recycle
- Complete reports on product inspection.

Employment requirements

- Some secondary school education is usually required.

- Experience as a manufacturing labourer in the same company may be required.
- On-the-job training is provided.

Additional information

- There is little or no mobility among the various assemblers and inspectors in this unit group.
- Progression to supervisory positions is possible with experience.

Classified elsewhere

- *Supervisors, other products manufacturing and assembly (9227)*

9611 Labourers in mineral and metal processing

Labourers in this unit group perform material handling, clean-up, packaging and other elemental activities related to mineral ore and metal processing. They are employed in mineral ore and metal processing plants such as copper, lead and zinc refineries, uranium processing plants, steel mills, aluminum plants, precious metal refineries, cement processing plants, clay, glass and stone processing plants and foundries.

Example titles

asbestos worker – mineral processing

brick and tile kiln cleaner

core shop labourer – foundry

extrusion helper – primary metal processing

furnace loader – primary metal and mineral products processing

glass packer

helper, fibreglass oven charger

lime kiln operator helper – mineral products processing

metal pourer helper

rolling mill worker – primary metal processing

salt screening labourer

tailings disposal labourer – primary metal processing

Main duties

Labourers in mineral and metal processing perform some or all of the following duties:

- Transport raw materials, finished products, scrap and recyclable materials throughout plant manually or using forklift or other powered equipment
- Feed conveyors, crushers and other equipment; open valves and start pumps; skim dross from furnaces; sort, stack, bundle and stamp materials; and perform other activities to assist process and machine operators in mineral ore and metal processing
- Clean work areas and equipment
- May assist with minor repairs and maintenance.

Employment requirements

- Completion of secondary school may be required for some positions in this group.

Additional information

- Progression to machine and process operator positions is possible with experience.

Classified elsewhere

- *Labourers in metal fabrication* (9612)
- *Machine operators and related workers in mineral and metal products processing and manufacturing* (941)
- *Supervisors, mineral and metal processing* (9211)

9612 Labourers in metal fabrication

Labourers in this unit group remove excess metal and unwanted materials from metal parts, castings and other metal products and perform other labouring activities. They are employed in structural steel, boiler and platework fabrication plants, heavy machinery manufacturing plants, sheet metal fabrication shops, shipbuilding and other metal products manufacturing companies.

Example titles

blacksmith helper	metalworking machine helper
buffing machine tender – metal products manufacturing	plater helper – metal fabrication
grinder-deburrer	shipfitter helper
labourer – metal fabrication	shotblaster – metal fabrication
metal cleaner – metal products manufacturing	wheelabrator operator – metal products manufacturing

Main duties

Labourers in this unit group perform some or all of the following duties:

- Read and interpret work orders
- Operate metal cleaning equipment such as wheelabrators, deburrers and shotblasters to remove excess welds, rust, scale and other material from surfaces of metal parts, castings and other metal products
- Polish metal products to mirror finish
- Immerse metal products in cleaning solutions
- Assist structural steel and platework fitters, sheet metal workers, metalworking machine operators or other metal workers
- Transport raw materials and finished metal products manually or using hoists or other devices
- Sort metal sheets and parts, scrap metal and other materials
- Clean work areas and equipment
- Load and unload vehicles using hand truck or dolly
- May cut, grind or chip excess metal from metal products using hand tools.

Employment requirements

- Some secondary school education may be required.

Additional information

- There is some mobility among occupations in this unit group.
- Progression to metalworking machine operator positions is possible with experience.

Classified elsewhere

- *Labourers in mineral and metal processing (9611)*

9613 Labourers in chemical products processing and utilities

Labourers in this unit group carry out a variety of material handling, cleaning and routine general labouring activities. They are employed by petroleum and natural gas processing, pipeline and petrochemical, chemical and pharmaceutical companies, and by electrical, water and waste treatment utilities and services.

Example titles

cleaner, filter – chemical processing
cleaner, still – chemical processing
coating machine feeder – chemical processing
helper – chemical processing
labourer – gas utility

loader – chemical processing
retort unloader
water intake tender
waterworks labourer

Main duties

Labourers in this unit group perform some or all of the following duties:

- Feed and unload production machinery and equipment
- Clean chemical processing machines and equipment and production areas
- Move, sort and pile materials and products manually and using powered equipment
- Assist other workers to operate, repair and maintain process equipment, gas distribution, water filtration and waste plant equipment
- Perform general duties such as basic construction, painting and other manual tasks.

Employment requirements

- Completion of secondary school may be required.

Additional information

- Considerable mobility is possible among jobs in this unit group.
- Progression to operator positions in the chemical or utility industry is possible with experience and appropriate qualifications.

Classified elsewhere

- *Chemical plant machine operators* (9421)
- *Petroleum, gas and chemical process operators* (9232)
- *Supervisors, petroleum, gas and chemical processing and utilities* (9212)
- *Water and waste treatment plant operators* (9243)
- *Waterworks and gas maintenance workers* (7442)

9614 Labourers in wood, pulp and paper processing

Labourers in this unit group carry out a variety of general labouring and routine wood processing activities and assist pulp mill and papermaking machine operators. They are employed by pulp and paper, and paper converting companies, sawmills, planing mills, wood treatment plants, waferboard plants and other wood processing companies.

Example titles

beater operator helper – pulp and paper
chip bin attendant – wood processing
conveyor cleaner – pulp and paper
green wood chainman/woman – wood processing
grinder feeder – pulp and paper
labourer – pulp and paper

labourer – wood processing
lumber straightener – wood processing
plywood dryer feeder
sheeter helper – pulp and paper
utility man/woman – pulp and paper

Main duties

Labourers in this unit group perform some or all of the following duties:

- Feed logs onto conveyor and into hopper of grinding machine and align logs manually, using crowbar, picaroon or other tools and equipment
- Load wood chips, pulpwood, sulphur and other processing materials onto conveyors or processing tanks, remove recyclable paper and pulp from pulp and papermaking machines and transport recyclable paper and pulp to plant processing machines and equipment using forklift or other powered equipment
- Sort, pile and transport lumber, veneer sheets, panelboards and similar wood products during various stages of wood processing, manually or with powered equipment
- Remove scrap lumber and wood chips for reprocessing using forklift or other powered equipment
- Feed conveyors, saws, drying machines and other equipment to process lumber, shingles, veneer, plywood and similar wood products
- Clean wood processing machines and equipment and work areas using shovels, hoses and other tools
- Assist other wood processing workers to operate, maintain and repair various machines and equipment and carry out other wood processing activities.

Employment requirements

- Completion of secondary school is required by the pulp and paper industry and by other large employers.

Additional information

- There is considerable mobility among jobs within individual establishments.
- Progression to machine or plant operating positions is possible with experience.

Classified elsewhere

- *Machine operators and related workers in pulp and paper production and wood processing and manufacturing (943)*
- *Supervisors, forest products processing (9215)*

9615 Labourers in rubber and plastic products manufacturing

Labourers in this unit group assist machine operators, transport materials and perform similar tasks. They are employed by rubber and plastic products manufacturing companies.

Example titles

belt builder helper

labourer – plastic products manufacturing

labourer – rubber products manufacturing

machine offbearer – rubber products
manufacturing

mould cleaner – rubber products manufacturing

moulded products stripper – rubber and plastic
products manufacturing

roll changer – rubber manufacturing

spreader operator helper – plastic products
manufacturing

Main duties

Labourers in this unit group perform some or all of the following duties:

- Assist machine operators or assemblers in performing their duties
- Assist in setting up and dismantling machinery and equipment
- Clean and lubricate machinery and equipment
- Transport materials and tools to and from work areas using hand trucks or other conveyance
- Prepare raw materials for mixing process
- Monitor machines to watch for jammed materials or defective products.

Employment requirements

- Some secondary school education is usually required.

Additional information

- Progression to machine operator or assembler positions in rubber and plastic products manufacturing is possible with experience.

Classified elsewhere

- *Plastic products assemblers, finishers and inspectors (9535)*
- *Plastics processing machine operators (9422)*
- *Rubber processing machine operators and related workers (9423)*
- *Supervisors, plastic and rubber products manufacturing (9214)*

9616 Labourers in textile processing

Labourers in textile processing perform a variety of manual duties to assist in processing fibres into yarn or thread, or to assist in weaving, knitting, bleaching, dyeing or finishing textile fabrics or other textile products. They are employed by textile manufacturing companies.

Example titles

doffer
dyeing and finishing machine loader
helper – textiles

textile machine cleaner
waste machine feeder
yarn handler

Main duties

Labourers in textile processing perform some or all of the following duties:

- Load and off-load machines
- Clean textile machines and work areas
- Push carts, trucks, or cans of fibres from one work area to another
- Assist machine operators and other textile workers as required.

Employment requirements

- Some secondary school education may be required.

Additional information

- Progression to machine operator positions is possible with experience.

Classified elsewhere

- *Machine operators and related workers in textile, fabric, fur and leather products processing and manufacturing* (944)
- *Supervisors, other products manufacturing and assembly* (9227)
- *Supervisors, textile, fabric, fur and leather products processing and manufacturing* (9217)

9617 Labourers in food, beverage and associated products processing

Labourers in this unit group perform material handling, clean-up, packaging and other elemental activities related to food, beverage and associated products processing. They are employed in fruit and vegetable processing plants, dairies, flour mills, bakeries, sugar refineries, meat plants, breweries and other food, beverage and associated products processing and packaging plants.

Example titles

bottle-washing machine tender – food and beverage processing
brewery labourer
candy packer
dairy helper – food and beverage processing
food processing labourer

frozen food packer
meat packager
nut sorter – food and beverage processing
production helper – food and beverage processing
tobacco processing labourer

Main duties

Labourers in food, beverage and associated products processing perform some or all of the following duties:

- Transport raw materials, finished products and packaging materials throughout plant and warehouse manually, or with powered equipment
- Measure and dump ingredients into hoppers of mixing and grinding machines or mobile tank trucks
- Feed and unload food, beverage and associated products processing machines
- Feed flattened boxes into forming machines to construct containers
- Remove filled containers from conveyors and manually pack goods into bags, boxes or other containers
- Clean work areas and equipment
- Check products and packaging for basic quality defects
- Assist process control and machine operators in performing their duties.

Employment requirements

- Some secondary school education may be required.

Additional information

- There is some mobility among occupations in this unit group.
- Labourers in food, beverage and associated products processing may progress to machine or process operating positions with experience.

Classified elsewhere

- *Labourers in fish and seafood processing* (9618)
- *Process control and machine operators, food, beverage and associated products processing* (9461)
- *Supervisors, food, beverage and associated products processing* (9213)

9618 Labourers in fish and seafood processing

Labourers in this unit group perform clean-up, packaging, material handling and other elemental activities related to fish and seafood processing. They are employed in fish and seafood processing and packaging plants.

Example titles

cannery labourer
fish briner – fish processing
fish plant labourer
fish salter – fish processing

fish weigher
shellfish labourer
shellfish packer – fish processing

Main duties

Labourers in fish and seafood processing perform some or all of the following duties:

- Unload fish and shellfish from fishing vessels and transport them by hand or forklift truck to work area in fish processing plant
- Immerse fresh fish fillets in brine solution to condition them for wrapping or freezing
- Weigh fish or shellfish, record weight and pack fish in ice
- Sort fish according to species, weight and destination
- Clean work areas and equipment
- Transport supplies and packaging materials throughout plant and storage area manually or with powered equipment
- Measure and dump ingredients into hoppers of mixing and grinding machines.

Employment requirements

- Some secondary school education may be required.

Additional information

- Progression to other occupations in the fish processing industry is possible with experience.

Classified elsewhere

- *Fish and seafood plant workers* (9463)
- Foremen/women of workers in fish processing (in 9213 *Supervisors, food, beverage and associated products processing*)

9619 Other labourers in processing, manufacturing and utilities

This unit group includes labourers, not elsewhere classified, who perform material handling, clean-up, packaging and other elemental activities in processing, manufacturing and utilities. They are employed by companies that manufacture products such as clothing, footwear, furniture and electrical and electronic products and by printing and packaging companies.

Example titles

bindery helper

box packer

carton marker

chair sander

clothing plant labourer

electrical products labourer

film cutter – film processing

furniture packer

garment folder

labourer, shoe manufacturing

lens blocker

packager, machine

seed packager

sorter, recyclable materials

upholsterer helper

Main duties

Labourers in this unit group perform some or all of the following duties:

- Transport raw materials, finished products and equipment throughout plant manually or using powered equipment
- Check and weigh materials and products
- Sort, pack, crate and package materials and products
- Assist machine operators, assemblers and other workers
- Clean work areas and equipment
- Perform other labouring and elemental activities.

Employment requirements

- Some secondary school education may be required.

Additional information

- There is some mobility among occupations in this unit group.
- Progression to machine operating positions is possible with experience.

Classified elsewhere

- Supervisors of labourers in this unit group (in 9227 *Supervisors, other products manufacturing and assembly*)
- *Supervisors, textile, fabric, fur and leather products processing and manufacturing (9217)*