



International Labour Organization  
Organisation internationale du Travail  
Organización Internacional del Trabajo

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*Updating the  
International Standard Classification of Occupations (ISCO)*

*Draft ISCO-08 Group Definitions:  
Occupations in Mining*

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POLICY INTEGRATION DEPARTMENT  
BUREAU OF STATISTICS

12/05/2009

## **ISCO-08 Draft Definitions - Mining**

### **ISCO 08 Code**

**3117**

### **Title EN**

**Mining and metallurgical technicians**

### **Lead Statement**

Mining and metallurgical technicians perform a variety of technical tasks to support engineers, metallurgists and other professionals in the development and operation, of mines and related mineral processing facilities, the extraction of metals from their ores, the processing of metals and alloys, and the development and production of metal products.

### **Task statement**

Tasks include:

- (a) obtaining and preparing samples of rocks, minerals and metals for testing;
- (b) conducting physical and chemical tests to identify the properties of rocks, minerals and metals under the direction of metallurgists and other professionals;
- (c) taking readings, performing calculations, recording, analysing, reporting and interpreting results from laboratory tests and field surveys;
- (d) participating in geological and oceanographic surveys, prospecting field trips, exploratory drilling, oil and gas well logging, and underground mine survey programs, including operating and maintaining instruments and equipment used in these activities;
- (e) preparing and maintaining surface and subsurface survey plans;
- (f) assisting in the conduct of environmental audits and related environmental protection activities to minimize impacts on the environment of new mining and oil and gas operations;
- (g) preparing estimates of quantities and costs of materials, equipment and labour required for mineral, oil and natural gas exploration and extraction, and for processing and refining minerals according to specifications;
- (h) diagnosing and detecting faults, and implementing procedures to maintain efficient operation of plant, systems and equipment;
- (i) identifying unsafe structures, equipment and work practices and conditions, and ensuring that safety regulations and standards are followed.

### **Included occupations**

Examples of the occupations classified here:

- Mining Engineering Technician
- Extractive Metallurgy Technician
- Mine Safety Inspector

### **Excluded occupations**

Some related occupations classified elsewhere:

- Chemical Process Technologist - 2145
- Geology Technician - 3111
- Drilling Machine Operator (mining) - 8111
- Miner - 8111
- Quarrier - 8111

### **Notes**

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**ISCO 08 Code**  
**3121**  
**Title EN**  
**Mining supervisors**

**Lead Statement**

Mining supervisors oversee mining and quarrying operations and directly supervise and coordinate the activities of miners working in underground and surface mines and quarries.

**Task statement**

Tasks include:

- (a) directly supervising and coordinating the activities of workers who extract minerals and other natural deposits from the earth, operate underground conveyances or heavy equipment in surface mines and quarries;
- (b) establishing methods to meet work schedules and recommending measures to mining managers to improve productivity;
- (c) working with managerial and technical personnel, other departments and contractors to resolve operational problems and coordinate activities;
- (d) providing reports and other information to mining managers about all aspects of mining or quarrying operations;
- (e) determining staffing and material needs for the mine or quarry.

**Included occupations**

Examples of the occupations classified here:

- Mine Deputy
- Mine Supervisor
- Mine Under-manager
- Quarry Supervisor

**Excluded occupations**

Some related occupations classified elsewhere:

- Mining Manager - 1322
- Mine Safety Inspector - 3117
- Miner - 8111
- Quarrier - 8111

**Notes**

**ISCO 08 Code**  
**7542**  
**Title EN**  
**Shotfirers and blasters**

**Lead Statement**

Shotfirers and blasters, position, assemble, and detonate explosives at mining, quarrying and demolition sites.

**Task statement**

Tasks include:

- (a) ensuring workplace safety and explosives handling, storage and transport procedures and regulations are followed;
- (b) planning and giving instructions for the lay out, depth and diameter of blast holes;
- (c) checking depth and cleanliness of blast holes;
- (d) determining quantity and type of explosives to be used;
- (e) loading explosives into blast holes;
- (f) assembling, or directing other workers to assemble, primer charges using detonators and explosive cartridges, and attaching electrical wires, fuses and detonating cords to primers;
- (g) connecting wires, fuses and detonator cords into series, testing electrical circuits and repairing malfunctions, and connecting series to blasting machines;
- (h) covering charges, filling blast holes with rock dust, sand and other materials, and tamping material to compact charges;
- (i) ensuring all explosives are detonated, and reporting and attending to misfires;
- (j) declaring blast areas safe before and after detonation of explosives;
- (k) compiling and maintaining records about usage of explosives in compliance with laws and regulations.

**Included occupations**

Examples of the occupations classified here:

- Blaster
- Powderman
- Powder Monkey
- Shotfirer

**Excluded occupations**

Some related occupations classified elsewhere:

- Driller (mining) - 8111
- Driller (oil or gas well) - 8113
- Mining Supervisor - 3121
- Mining Labourer - 9311
- Quarry Labourer - 9311

**Notes**

**ISCO 08 Code****811****Title EN****Mining and mineral processing plant operators****Lead Statement**

Mining and mineral processing plant operators operate and monitor plant and machinery which extract rock and minerals from the earth, process minerals and stone, drill wells and bores, and manufacture and finish cement and stone products.

**Task statement**

Tasks performed usually include: setting up, operating and monitoring a variety of mining and mineral processing plant and machinery such as drilling rigs and auxiliary machines and equipment, continuous mining machinery, and cutting, crushing, grinding, pumping and mixing plant and machinery; operating washing, separating, extracting and combining equipment to remove waste and recover minerals; operating plant and machinery to make cement, concrete, artificial stone, and precast concrete and stone products; monitoring the performance of a variety of plant and machinery, detecting malfunctions and taking corrective action; performing plant and machinery maintenance, repairs and cleaning; and maintaining production records.

**Included occupations**

Occupations in this minor group are classified into the following unit groups:

8111 Miners and quarriers

8112 Mineral ore and stone processing plant operators

8113 Well drillers and borers and related workers

8114 Cement, stone and other mineral products machine operators

**Excluded occupations****Notes**

Mining Supervisors are classified in Unit Group 3121.

**ISCO 08 Code****8112****Title EN****Mineral ore and stone processing plant operators****Lead Statement**

Mineral ore and stone processing plant operators operate and monitor machinery and equipment for processing rocks, minerals and stone to recover refined products for immediate use or further processing.

**Task statement**

Tasks include:

- (a) setting up and operating stationary plant and machinery which grind, crush, cut, saw and slice rocks, minerals and stones according to the specifications for the job;
- (b) positioning blocks and slabs of stone onto machines for sawing, cutting and further working;
- (c) monitoring and maintaining the flow of unprocessed rocks, minerals and stones from conveyors into machines;
- (d) operating washing, separating, leaching, precipitating, filtering, extracting and combining equipment to remove waste material and recover minerals;
- (e) combining mineral ores with solvents to facilitate further processing;
- (f) separating metal and mineral concentrates from ore and alluvial deposits by thickening, flotation, gravity separation, filtration, and ~~or~~ magnetic and electrostatic separation;
- (g) observing meters, gauges and control panels, and adjusting valves and controls to ensure the safe and efficient operation of equipment, and detecting malfunctions, and assisting with plant and machinery maintenance and repair;
- (h) examining processed materials visually or with hands to ensure compliance with established standards and job specifications, and may collect samples for testing in laboratories;
- (i) recording information about processing completed during shifts, such as quantities, types and dimensions of materials produced;
- (j) sorting, stacking and moving processed minerals and stone for packaging, further processing or shipping.

**Included occupations**

Examples of the occupations classified here:

- Coal Washer
- Crusher Operator (mineral or stone processing)
- Flotation Worker (mineral processing)
- Gold Precipitator
- Machine Operator (stone cutting or processing)
- Milling Machine Operator (minerals)

**Excluded occupations**

- Stone Cutter (hand or hand-powered tools) – 7113
- Stonemason - 7113
- Stone Polisher (hand or hand-powered tools) - 7113
- Stone Splitter (hand or hand-powered tools) - 7113
- Machine Operator (cast stone production) - 8114
- Stone Polishing Machine Operator - 8114

**Notes**

**ISCO 08 Code****8113****Title EN****Well drillers and borers and related workers****Lead Statement**

Well drillers and borers and related workers position, assemble and operate drilling machinery and related equipment to sink wells and extract ore, liquids and gases.

**Task statement**

Tasks include:

- (a) dismantling, moving and assembling drilling rigs and auxiliary equipment;
- (b) assembling and dismantling pipes, casings and drill heads, and replacing dysfunctional equipment;
- (c) operating controls to lower and raise drill pipes and casings in and out of wells, regulate pressure in the well and control the speed of tools;
- (d) preparing drilling fluid and checking the operation of pumps to ensure adequate circulation of fluid in drill pipe and well;
- (e) monitoring gauges and other indicators and listening to equipment to detect malfunctions and unusual well conditions, and determining the need to change drilling or equipment;
- (f) maintaining, adjusting, repairing and cleaning drilling rigs, hoisting and other machinery;
- (g) maintaining records of drilling and servicing operations;
- (h) operating machines and tools to extract dust, cuttings and lost and broken drilling equipment from holes and wells;
- (i) closing and sealing wells no longer in use;
- (j) may supervise and train crew members.

**Included occupations**

Examples of the occupations classified here:

- Boring Equipment Operator
- Bore Sinker
- Derrickman
- Derrick Operator
- Developmental Driller
- Directional Driller
- Drilling Rig Operator
- Jumbo Operator
- Power-tong Operator
- Toolpusher
- Tourpusher

**Excluded occupations**

- Blaster - 7542
- Miner - 8111
- Quarrier - 8111

**Notes**

Well drillers and borers and related workers may construct wells and bores to extract commodities other than oil or gas, such as ores, salt and water.

**ISCO 08 Code****8114****Title EN****Cement, stone and other mineral products machine operators****Lead Statement**

Cement, stone and other mineral products machine operators operate and monitor machines for manufacturing and finishing precast concrete and stone products, and making cast stone for building purposes.

**Task statement**

Tasks include:

- (a) operating extrusion, moulding, mixing, pumping, compacting, grinding and cutting machines which manufacture and finish precast concrete and stone products;
- (b) operating plant to produce cement, lime and clinker, including loading and unloading ingredients and operating continuous feed equipment such as pumps and conveyors;
- (c) operating plant and machines which weigh and mix sand, gravel, cement, water and other ingredients to make concrete;
- (d) operating plant and machinery which assembles and fills moulds with concrete and artificial stone mixtures, removes castings from moulds and finishes surfaces of precast products;
- (e) cutting, grinding, drilling, sandblasting and polishing concrete products and stone blocks, slabs and products to the specifications for the job;
- (f) checking production plans and specifications to determine and select materials, ingredients, procedures, components, settings and adjustments for extrusion, moulding, mixing and compacting machines;
- (g) monitoring plant and machines during operation by observing instruments such as temperature and pressure gauges, and adjusting controls and reporting malfunctions as necessary;
- (h) collecting and examining samples of mixtures and finished products for conformity to specifications and adjusting machine settings accordingly;
- (i) checking and maintaining production records, including information about quantities, dimensions and types of materials and goods produced;
- (j) arranging and assisting with plant and machinery maintenance and repair.

**Included occupations**

Examples of the occupations classified here:

- Cast-concrete Products Machine Operator
- Cast-stone Products Machine Operator
- Concrete Production Machine Operator
- Industrial Diamond Polishing Machine Operator
- Stone Polishing Machine Operator

**Excluded occupations**

Some related occupations classified elsewhere:

- Stone Polisher (hand or hand-powered tools) - 7113
- Clay Brick and Tile Kiln Operator - 8181
- Kiln Operator (cement production) - 8114
- Stone Processing Machine Operator - 8112
- Press-operator, extruding clay - 8181

**Notes**

Examples of products produced by operators of machines in this unit group include: flagstones, concrete bricks and tiles, fencing posts, moulded pipe sections and trench liners, concrete railway sleepers, walling and partition slabs, building components, cable conduits, fume and dust extraction conduits, abrasive wheels and outdoor furniture.

**ISCO 08 Code****9311****Title EN****Mining and quarrying labourers****Lead Statement**

Mining and quarrying labourers perform routine tasks in mining and quarrying operations.

**Task statement**

Tasks include:

- (a) assisting miners and quarryers in maintaining machinery, equipment, and mine and quarry installations;
- (b) assembling and dismantling mining equipment;
- (c) removing tunnel supports from disused workings in mines and quarries;
- (d) removing dangerous projections from mine and quarry workings;
- (e) removing waste and serviceable materials and equipment from work areas after extraction activities have been completed, and clearing rock and mineral spills;
- (f) cleaning machinery, equipment, tools, roadways and haulage tracks;
- (g) sorting, loading, unloading, stacking and storing tools, materials and supplies used by other mine workers.

**Included occupations**

Examples of the occupations classified here:

- Coal Sampler
- Mining Labourer
- Quarry Labourer

**Excluded occupations**

Some related occupations classified elsewhere:

- Driller (mining) - 8111
- Miner - 8111
- Mining Plant Operator - 8111
- Quarryer - 8111
- Driller (oil or gas well) - 8113
- Drilling Plant Operator - 8113

**Notes**

None proposed.