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Definitions and Valuation: Mineral Production, Shipments, and Trade

MINERAL STATISTICS

The publication of statistics on the mineral production of Canada was instituted by the Geological and Natural History Survey of Canada as early as 1886. The Department of Mines carried out this compilation through the early part of the twentieth century. Subsequently, the work was transferred to Statistics Canada, which published the data for the period 1921 to 1978. In January 1979, the responsibility for Canadian non-fuel mineral statistics was transferred from Statistics Canada to the Department of Energy, Mines and Resources (now Natural Resources Canada). Statistics Canada retains responsibility for fuels and mineral manufacturing statistics (including cement, lime, clay, and smelting and refining).

The construction of new metallurgical plants and the development of new types of ore have resulted in changes in methods of compilation over the period but, in general, the following principles have been applied.

For nonmetallic minerals such as asbestos, talc, barite, etc., and for structural materials such as stone, cement, etc., the mine or quarry shipments are taken to represent production. Usually there is little difference between actual output and mine shipments, and it is more convenient and practical to measure the product at the latter point. Values are computed on the free on board (f.o.b.) shipping point basis and represent, therefore, the amounts actually received by the producers. Values are adjusted to exclude the costs of containers, taxes, duties, sales discounts, and outward-bound transportation.

Production data for certain simple metallic ores such as iron ore, uranium, etc., are compiled in a similar manner, that is, products shipped from a specific shipping point at f.o.b. values. For some metals, this is not practical and an attempt is made to measure output in terms of recoverable metals in concentrates shipped, which are then valued at current market prices.

The value of metallic mineral production calculated in this manner does not coincide with the amounts actually received by the producers.

DETAILS OF THE METHODS USED IN COMPUTING THE MINERAL PRODUCTION OF CANADA

Metallic Mineral Production

Antimony

Production includes recoverable antimony in concentrates shipped. The value is calculated using the yearly average New York dealer price.

Bismuth

Production includes recoverable bismuth in concentrates shipped. The value is calculated using the yearly average New York dealer price.

Cadmium

Cadmium is associated with zinc. Production includes the recoverable content of cadmium in the zinc-lead concentrates shipped, valued at the yearly average New York dealer price.

Cesium

Production figures represent the cesium oxide content of pollucite ore shipped. The value is as reported by the producer.

Cobalt

Production includes recoverable cobalt in concentrates shipped. The value is calculated using the yearly average cathode dealer spot price.

Copper

Production includes recoverable copper in concentrates shipped. The value is calculated using a combination of the Commodities Exchange, Inc. (COMEX) first position price and the average London Metal Exchange Grade A Settlement price.

Gold

Production includes gold in crude bullion obtained directly from placer workings and lode gold mines, and recoverable gold in all types of ores and concentrates shipped. The value is calculated using the average final price as established by bullion dealers in London.

Ilmenite

Production includes shipments of direct shipping grade ore at Canada's sole shipper's reported value.

Indium

Production includes quantities recovered in the smelting of silver-lead-zinc ores from Canadian sources. The output is valued by the shipper.

Iron Ore

Production figures represent product shipments (pellets, concentrates, ores) at the values shown by the shippers. Production from steel plant waste oxides is excluded.

Iron (Remelt)

This is sometimes called pig iron or Sorel iron. It is a co-product in the smelting of ilmenite ores. Quantity and value figures are those reported by the producer.

Lead

Production includes recoverable lead in concentrates shipped. The value is computed at the average producer price for the year.

Lithium

Production figures represent the lithium oxide content of spodumene and amblygonite ore shipped. The value is as reported by the producer.

Molybdenum

Production figures are the molybdenum content of the oxides, ferromolybdenum and sulphides shipped; the value is that shown by the shipper.

Nickel

Production includes recoverable nickel in concentrates shipped. The value is calculated using an assessment price based on the London Metal Exchange price.

Niobium (Columbium)

Production includes niobium (columbium) contained in ferroniobium shipped with the value as reported by the shipper.

Platinum Group Metals (PGM)

Production figures for iridium, palladium, platinum, ruthenium and rhodium include recoverable metal in concentrates shipped. Quantities are valued using the average New York dealer price or the London Metal Exchange price, depending on the metal.

Selenium

Production includes selenium produced as a refinery by-product from Canadian sources and recoverable selenium contained in concentrates exported. The quantities are valued at the average New York dealer price for the year.

Silver

Production includes silver in crude bullion obtained directly from placer workings and lode gold mines, and recoverable silver in all types of ores and concentrates shipped. The value is calculated using the average of Toronto quotations for the year.

Tantalum

Production comprises the tantalum pentoxide content of concentrates shipped. The value is as reported by the producer.

Tellurium

Production includes tellurium produced as a refinery by-product from Canadian sources and recoverable tellurium contained in concentrates exported. The quantities are valued at the average producer's price for the year.

Tungsten

Production figures include the content of concentrates shipped. The value is as reported by the shipper.

Uranium

Producers of uranium precipitates or concentrates report the metal content (U) of the shipments, and the value is calculated using the average producer's price for the year.

Zinc

Production comprises recoverable zinc in concentrates shipped. The value is calculated using the average London Metal Exchange price for the year.

Nonmetallic Mineral Production

Owing to the fact that it is difficult to obtain figures of the actual production of nonmetallic minerals in Canada, and since the first actual measurement is when the product is sold, plant shipments have been taken to represent production in all cases.

Asbestos (Chrysotile)

Production figures represent shipments of the various grades at the total selling value, f.o.b. shipping points, less the value of containers.

Barite

Production is the shipments of the various grades at the selling value, f.o.b. shipping points.

Carbonatite

Production is the shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Cement

Production comprises shipments of portland and masonry cements, exported clinker minus imported clinker, and transfers to other corporate divisions for use in other manufacturing processes. The value is f.o.b. plant, as reported by the shipper.

Clay Products

Production represents shipments of brick and other clay products made from domestic clays, and the shipments of unmanufactured clays (bentonite, diatomite) at the total selling value, f.o.b. works, as reported by the operator. Data relating to clay products manufactured from imported clays are not included.

Diamonds

Production is shipments from the mine. The value is as reported by the producer.

Gemstones

Production is the tonnage of crude and rough cut gemstones (excluding diamonds) at the selling value, f.o.b. shipping points.

Graphite

Production is the shipments of various grades from the mill at the selling value, f.o.b. the mill, less container costs.

Gypsum ¹

Production is taken as the tonnage of crude gypsum and anhydrite shipped from quarries or mines in lump, crushed, or fine-ground forms. The value is that reported by the operator. (Note: Gypsum used in the manufacture of cement in Canadian cement plants is excluded.)

Lime

Production represents the tonnage of hydrated and quicklime shipped (sold by the producer) together with the tonnage of these limes produced and used by the producers of chemicals and allied products. The value is as reported by the producer.

Magnesite

Production is the tonnage of crude material sold by primary producers, plus the tonnage of calcined or dead-burned material sold or used by primary producers. The value is as reported by the producer.

Marl

Production is the producer's shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Mica

Production is recorded as shipments from plants dressing new mica and exported shipments directly from the mines. The value of shipments is taken as reported by the operator.

Nepheline Syenite

Production of crude and ground nepheline syenite is the amount of the various grades shipped at the total selling value, f.o.b. works, less container costs.

Peat

Production comprises crude peat shipped to Canadian non-producers as fuel or for export, baled peat shipped, and the peat content of mixed products shipped. The value is sales, f.o.b. works, less container costs.

Phosphate

Production is shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Potash

Production represents the producer's shipments of various grades from the plant and is measured as the K₂O equivalent. The value is f.o.b. plant, as reported by the producer.

Potassium Sulphate

Production is the producer's shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Pumice

Production is the producer's shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Quartz (Silica) ¹

Production represents the tonnage of crude or pulverized quartz, quartzite, pure silica sand, or other natural silica material shipped for sale, plus the tonnage of any of these materials used by producers. The value is taken as reported by the producer.

Salt

Production is taken as the tonnage of various grades of dry salt shipped by primary producers, plus the salt content of brine used by producers for industrial (chemical) purposes. The value is as reported by the producer.

Sand and Gravel

Production represents shipments of natural gravel, sand and crushed gravel at the value reported by the operator of sand and gravel pits or dredges.

Soapstone, Talc, Pyrophyllite

Production comprises crude, ground or sawn soapstone shipments; crude, milled or refined talc shipments; and crude or ground pyrophyllite shipments. All shipments are f.o.b. the mill or plant and are valued by the shipper.

Sodium Sulphate

Production is the tonnage of crude or refined natural sodium sulphate shipped at its selling value, f.o.b. shipping points. The figures exclude the sodium sulphate produced as a by-product of paper or rayon manufacturing.

Stone

Production represents quarry shipments of crude or non-dressed stone, crushed stone, and dressed stone, if the latter is prepared by the quarry operator at the value reported by the operator. The figures include data for both private and public or municipally owned properties. Production figures do not include dressed stone prepared from imported stone or prepared from domestic stone in works not at the quarries.

Sulphur, Elemental

In the western provinces, sour natural gas is processed to remove hydrogen sulphide, which is further reduced to yellow elemental sulphur. Sulphur recovered from the refining of Canadian crude petroleum is also included. Production is shown by the province/territory of origin of material and the value is as reported by the shipper.

Sulphur in Smelter Gas

Prior to final metal recovery, sulphide concentrates are smelted or roasted and the resultant gases may be used to produce marketable sulphur, sulphur dioxide, or sulphuric acid. Production is considered as the sulphur content of sulphuric acid made, sulphur dioxide marketed, and sulphur shipped. This sulphur is valued at the average price for sulphur sold in acid. Production is shown by the province/territory of origin of concentrates.

Titanium Dioxide

Ilmenite ore is smelted at Sorel, Quebec, to produce a slag containing titanium dioxide. Production is the titanium dioxide content of slag valued by the producer.

Zeolite

Production is shipments from the plant. The value is f.o.b. plant, as reported by the producer.

Fuels

Coal

Production figures are equal to shipments from the mine/plant plus "own" consumption as valued by the shipper, f.o.b. mine/plant.

VALUATION OF TRADE DATA

(Note: The following information was extracted from a [Statistics Canada web page](#).)

Export Valuation

Export data to all countries are measured in Canadian dollars.

Exports to countries other than the United States are recorded at the values declared on export documents. These values usually reflect an item's transaction value, i.e., the actual selling price used for company accounting purposes. Canadian exports to overseas countries are valued at f.o.b., port of exit, including domestic freight charges to that point, but excluding discounts and allowances.

Data on exports to the United States are collected by the United States as import data from Canada, converted to Canadian dollars using an average monthly rate provided by the Bank of Canada, and sent to Canada for dissemination as Canadian exports.

Import Valuation

Import data to all countries are collected in Canadian dollars.

Canadian imports are valued f.o.b. place of direct shipment to Canada. The import valuation excludes costs of freight and insurance in bringing the goods to Canada from the point of direct shipment.

Footnotes

1

To avoid duplication in computing a total value for Canadian mineral production, the quantity and value of gypsum, silica, and stone used in the manufacture of lime, cement and clay products are not included in the totals for gypsum, silica, and stone production. These particular data are recorded separately and are published in conjunction with data for the lime, cement and clay industries.

Date Modified: 2015-11-02