RUBIDIUM

(Data in kilograms of rubidium content unless otherwise noted)

Domestic Production and Use: Worldwide, rubidium occurrences may be associated with zoned pegmatites in the minerals pollucite, a source of cesium, or lepidolite, a source of lithium. Rubidium is not mined in the United States; however, rubidium concentrate is imported from Canada for processing in the United States. There are rubidium occurrences in Maine and South Dakota, and rubidium may also be found with some evaporite minerals in other States. Applications for rubidium and its compounds include DNA separation, fiber optics, inorganic chemicals, lamps, night vision devices, and as standards for atomic absorption analysis. Other applications include the use of high-purity rubidium (>98%) in vapor cells as a wavelength reference, and rubidium may be substituted for cesium as a frequency standard in atomic clocks. Rubidium-82, an isotope of rubidium, is used to trace blood flow in the heart. Rubidium-87, a natural decay product of strontium-82, may be extracted from potassium-bearing minerals, such as micas, and used for dating episodes of heating and deformation in rocks.

Salient Statistics—United States: One mine in Canada produced byproduct rubidium concentrate, which was then imported into the United States for processing. Production data from the Canadian mine, and U.S. consumption, export, and import data, are not available. In the United States, consumption of rubidium may amount to only a few thousand kilograms per year. No market price is available because the metal is not traded. In 2007, one company offered 1-gram ampoules of 99.75%-grade rubidium (metals basis) at $58.20 each, and the price for 100 grams of the same material was $1,118.00. Prices were unchanged from those of 2006.

Recycling: None.

Import Sources (2003-06): The United States is 100% import reliant on byproduct rubidium concentrate imported from Canada.

Tariff: Item	Number	Normal Trade Relations 12-31-07
Alkali metals, other	2805.19.9000	5.5% ad val.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

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RUBIDIUM

Events, Trends, and Issues: Consumption of rubidium and its compounds is not commercially significant, and no change in use patterns is anticipated. Rubidium halide cathodes are being researched as substitutes for use in low-pressure, mercury-free lighting owing to environmental concern for mercury releases from lamps. Small amounts of rubidium may be released to the atmosphere during coal combustion; however, there have been no adverse environmental or human health issues associated with the processing or use of rubidium.

World Mine Production, Reserves, and Reserve Base:[1] There are no minerals in which rubidium is the predominant metallic element; however, rubidium may be taken up in trace amounts in the lattices of potassium feldspars and micas during the crystallization of some pegmatites. The rubidium-bearing minerals lepidolite and pollucite may be found in some zoned pegmatites, which are exceptionally coarse-grained plutonic rocks that form late in the crystallization of a silicic magma. Lepidolite, a lithium-bearing mica, is the principal ore mineral of rubidium and may contain up to 3.15% rubidium. Pollucite, a cesium aluminosilicate mineral, may contain up to 1.35% rubidium. Supplies of rubidium-bearing lepidolite from Canada, the world's leading producer of rubidium, are adequate for current use patterns.

World Resources: Rubidium-bearing, zoned pegmatites are known in several locations in Canada, and there are also pegmatite occurrences in Afghanistan, Namibia, Peru, Zambia, and other countries. Minor amounts of rubidium are reported in brines in northern Chile and China and in evaporites in France, Germany, and the United States (New Mexico and Utah). World resources of rubidium are unknown.

Substitutes: Rubidium and cesium are close together on the Periodic Table, have similar atomic radii, and, therefore, have similar physical properties. These metals may be used interchangeably in most applications.

[1]See Appendix C for definitions.