Polonium Encyclopedia Article

Polonium

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Polonium

Polonium is the heaviest element in Group 16 of the **periodic table**, a group of elements often known as the **oxygen** family. Polonium has an **atomic number** of 84, an atomic **mass** of 208.9824, and a chemical symbol of Po.

Properties

All isotopes of polonium are radioactive, the most stable being polonium-209 with a half life of 102 years. The element has a melting point of 489°F (254°C), a **boiling point** of 1,764°F (962°C), and a **density** of 9.4 grams per cubic centimeter. Polonium has chemical problems similar to the other members of the oxygen family and is the most metallic member of that family. In general, scientists are much less interested in the element's chemical properties than its radioactive properties.

Occurrence and Extraction

Polonium is an extremely rare element, with an abundance estimated at no more than about 3×10^{-10} parts per million. For all practical purposes, the only polonium used today is produced synthetically in particle accelerators.

Discovery and Naming

Polonium was the first element to be discovered by **Marie Curie** and her husband Pierre as they analyzed pitchblende, an ore of **uranium**, in 1898. The Curies found that for each ton of pitchblende they processed, they were able to extract about 100 micrograms of a new element, which they name in honor of Madame Curie's native land, Poland.

Uses

Polonium has two minor uses. First, it can be used as a compact and efficient source of **heat** production in specialized situations where cost is of little consequence. An example of such a situation is a space probe. Polonium is also used to remove static **electricity** from photographic film where the electrical charge would otherwise damage the quality of a photograph.

Health Issues

Polonium is an extremely toxic material. Perhaps its greatest practical threat is in cigarette smoking. The products found in tobacco have been found to contain minute

amounts of polonium. The radiation given off by the element is so intense, however, that it must be considered as one of the health risks posed by cigarette smoking.