Polonium Encyclopedia Article

Polonium

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Polonium

Polonium is a volatile, radioactive metal element denoted by the atomic symbol, Po. Its atomic number is 84 and it has an atomic weight of approximately 209. Its melting point is 489.2°F (254°C) and its boiling point is 1763.6°F (962°C). Twenty five isotopes of polonium are known.

For Marie Curie and Pierre Curie, their discovery of polonium in 1898 was their first success in their search for new radioactive elements. A few years earlier, Henri Becquerel had detected rays emitted from uranium. Originally dubbed "Becquerel rays," these rays would eventually be known as radioactivity, a term Marie Curie coined. Choosing this emerging field as her dissertation topic, Marie joined with her husband to refine pitchblende, a waste ore commonly found around uranium mines and known to possess radioactive properties.

Unlike the accidental discovery of radiation by Becquerel, the Curies planned their research carefully. They purchased a quantity of pitchblende, refining and purifying the ore until they had extracted a small sample of a previously unknown element. This new substance, which they named polonium after Marie's homeland of Poland, was more than one hundred times as radioactive in its pure form than uranium. They later found evidence of a second radioactive element in pitchblende that was even more potent than polonium; they called this radium, and it would take the Curies another four years to refine even.0035 oz. (.01 g) of this element.

Though present in pitchblende, polonium is found in nature only as a by-product of uranium decay. It is used by meteorologists and also by physicists as a source of neutrons in atomic laboratories. It has also been used in textile mills to eliminate static charges and in the processing of photographic films to remove dust.