Tellurium Encyclopedia Article

Tellurium

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Tellurium

Tellurium is a semi-metal element denoted by the atomic symbol Te. The atomic number of tellurium is 52 and the average atomic weight of its isotopes is 127.60. Its melting point 841.64°F (449.8°C), and its boiling point, 1,810.4°F (988°C). It is a grayish-white, lustrous, and brittle solid.

Tellurium was first discovered in association with gold ores taken from Romanian mines in the mid-eighteenth century. It was probably first described by the Hungarian chemist Joseph Ramacsaházy, who thought it might be "unripe gold." This term refers to the alchemical theory that metals grow, just as plants and animals do. Gold was thought to be the final stage of metal growth. In addition to gold ores, the mines yielded a second puzzling mineral that contained gold combined with some unknown substance.

Among the earliest attempts to analyze this unknown substance was that of Baron Franz Joseph Müller von Reichenstein in 1782. Although trained in philosophy and law, Müller developed an interest in mineralogy and was a mining official for most of his adult life. Based on an initial analysis of the unknown substance, Müller announced that it was bismuth sulfide. A year later, he changed his mind. Further work on the mineral convinced him that he had discovered an entirely new element. Over the next three years, he carried out an exhaustive series of tests on the element to determine its physical and chemical properties.

In 1798, fourteen years after he first started work on the element, Müller sent a sample to Martin Klaproth, asking for verification of his findings. Klaproth agreed with Müller's results and suggested the name *tellurium* for the element. The name comes from the Latin word *tellus*, for "earth." Klaproth graciously acknowledged Müller as the element's discoverer.

Tellurium is a semiconductor that finds some use in solid-state devices. Its addition to copper and stainless steel improves the machinability of these metals. When alloyed with lead, tellurium improves this material's resistance to corrosion and improves its strength. Its compounds are used as coloring agents in glass, porcelain, enamel, and ceramics.