Scandium Encyclopedia Article

Scandium

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Scandium

Scandium is a rare earth metal element denoted by the atomic symbol Sc. Its atomic weight is 44.9559, its atomic number is 21. It melts at its 2,805.8°F (1,541°C). Scandium is a silvery-white metal which develops a yellowish or pinkish cast when exposed to air.

In 1876, the Swedish chemist Lars Nilson (1840-1899) discovered the element scandium. Nilson found the element while he was analyzing a complex mineral known as euxenite. Nilson named the element in honor of Scandinavia, his homeland, and the only place in the world that euxenite had yet been found. Nilson obtained scandium also from gadolinite, another mineral found only in Scandinavia.

The significance of Nilson's discovery was pointed out by his countryman, Per Teodor Cleve (1840-1905). Cleve showed that scandium's chemical and physical properties closely matched those of the eka-boron that had been predicted for element 21 by Dmitri Mendeleev a decade earlier. The close match of properties for eka-boron and scandium added further confirmation of Mendeleev's periodic law.

Scandium is typically obtained by extraction from the mineral thortveitite or from uranium mill tailing. The scandium is further purified by reducing the scandium fluoride with calcium. It has been used in high-intensity lamps and one isotope is sometimes used as a tracer in petroleum refineries. Since it is very lightweight, it has been experimented with by spacecraft designers.