

*** Name Origin:**

Greek: neos (new) didymos (twin).

*** Sources:**

Made from electrolysis of its halide salts.

*** Uses:**

Used in ceramics to color glazes. And for special lens with praseodymium. Also to produce bright purple glass and special glass that filters infrared radiation.

*** Additional Notes:**

In 1841, Mosander, extracted from cerite a new rose-colored oxide, which he believed contained a new element. He named the element didymium, as it was an inseparable twin brother of lanthanum. In 1885 von Welsbach separated didymium into two new elemental components, neodymium and praseodymium, by repeated fractionation of ammonium didymium nitrate. While the free metal is in misch metal, long known and used as a pyrophoric alloy for light flints, the element was not isolated in relatively pure form until 1925. Neodymium is present in misch metal to the extent of about 18%. It is present in the minerals monazite and bastnasite, which are principal sources of rare-earth metals. The element may be obtained by separating neodymium salts from other rare earths by ion-exchange or solvent extraction techniques, and by reducing anhydrous halides such as NdF_3 with calcium metal. Other separation techniques are possible. The metal has a bright silvery metallic luster. Neodymium is one of the more reactive rare-earth metals and quickly tarnishes in air, forming an oxide that spalls off and exposes metal to oxidation. The metal, therefore, should be kept under light mineral oil or sealed in a plastic material. Neodymium exists in two allotropic forms, with a transformation from a double hexagonal to a body-centered cubic structure taking place at 863°C . Natural neodymium is a mixture of seven isotopes, one of which has a very long half-life. Twenty seven other radioactive isotopes and isomers are recognized. Didymium, of which neodymium is a component, is used for coloring glass to make welder's goggles. By itself, neodymium colors glass delicate shades ranging from pure violet through wine-red and warm gray. Light transmitted through such glass shows unusually sharp absorption bands. The glass has been used in astronomical work to produce sharp bands by which spectral lines may be calibrated. Glass containing neodymium can be used as a laser material to produce coherent light. Neodymium salts are also used as a colorant for enamels. The element is also being used with iron and boron to produce extremely strong magnets having energy densities as high as 27 to 35 million gauss oersteds. These are the most compact magnets commercially available. Neodymium has a low-to-moderate acute toxic rating. As with other rare earths, neodymium should be handled with care. Although it was actually discovered by Auer Von Welsbach in 1885 some sources mistakenly state that neodymium was discovered in 1925. This apparently is due to confusion created by the updated Second Edition of EOD (A dictionary of that time).