Neodymium - Nd

Chemical properties of neodymium - Health effects of neodymium - Environmental effects of neodymium

Atomic number	60
Atomic mass	144.2 g mol^{-1}
Electronegativity according to Pauling	1.14
Density	7.0 g cm^{-3}
Melting point	1024 °C
Boiling point	3074 °C
Vanderwaals radius	0.181 nm
Isotopes	9
Electronic shell	[Xe] $4f^{4}6s^{2}$
Energy of first ionisation	533 kJ.mol^{-1}
Energy of second ionisation	1040 kJ.mol^{-1}
Energy of third ionisation	2130 kJ.mol^{-1}
Discovered by	Carl Auer von Welsbach in 1885

Neodymium

Neodimium is a lustrous silvery-yellow metal. It is very reactive and qickly turnishes in air and the coated formed does not protect the metal from further oxidation, so it must be stored away from contact with air. It reacts slowly with cold water and rapidly with hot.

Applications

Neodymium is one of the rare chemicals, that can be found in houses in equipment such as colour televisions, fluorescent lamps, energy-saving lamps and glasses. All rare chemicals have comparable properties. Nedymium is one of the several metals in alloys commonly used in lighter flints. The most important alloys is neodymium, iron and boron (NIB), found to make excellent permanent magnets. These magnets are part of modern vehicles components, used in computer data storing and in loudspeakers. Neodymium is used in coloring glasses (didymium glass) able to adsorb the yellow sodium glare of the flame. This kind of glass is used to protect the eyes of welders. It is also used to tint glass attractive shades of purple.

neodymium in the environment

Neodymium is the second most abundant of the rare-earth elements (after cerium) an is almost as abundant as copper. It is found in minerals that include all lanthanide minerals, such as monazite and bastnasite. The main areas are Brazil, China, USA, India, Sri Lanka and Australia. Reserves of neodymium are estimated to be 8 million tonnes, world production of neodymium oxide is about 7.000 tonnes a year.

Health effects of neodymium

The amount of neodymium in humans is quite small and, although the metal has no biological role, it can be effects
regarded as only slightly toxic if they are soluble and non toxic if they are insoluble.

Neodymium is mostly dangerous in the working environment, due to the fact that damps and gasses can be inhaled
liver when it accumulates in the human body.

Environmental effects of neodymium

Neodymium is dumped in the environment in many different places, mainly by petrol-producing industries. It can als
and water soils and this will eventually lead to increasing concentrations in humans, animals and soil particles.

With water animals neodymium causes damage to cell membranes, which has several negative influences on repro