58 $4f^1 5d^1 6s^2$

Ce

Cerium

140.115

Cerium

Word origin: Cerium
Is named after the dwarf planet Ceres, which was discovered in 1801, two years before the element.

The element was discovered in 1803 by Jöns Jacob Berzelius and Wilhelm Hisinger and independently by Martin Klaproth. It oxidizes readily at room temperature.

Discovery

Position of cerium in the periodic table

Cerium is classified as an element in the Lanthanide series as one of the "Rare Earth Elements" which can located in Group 3 elements of the Periodic Table and in the 6th and 7th periods.

Physical properties

Cerium is a soft , ductile and silvery-white metal that tarnishes when exposed to air, and it is soft enough to be cut with a knife.

Chemical properties

Atomic mass 140.12 $g.mol^{-1}$

Electronegativity according to Pauling 1.1

Density 6.76 $g.cm^{-3}$ at 20°C

Melting point 799 °C

Boiling point 3426 °C

Vanderwaals radius 0.181 nm

Ionic radius 0.102 nm (+3)

Energy of first ionisation 526.8 $kJ.mol^{-1}$

Facts...

- It oxidizes readily at room temperature.
- It can decompose slowly in cold water, and very rapidly in hot water.
- The metal can be attacked by alkaline solutions, dilute and concentrate acids.
- When scratched with a knife, the pure metal of cerium may ignite.

BY- AISHWARYA JAIN XIA

isotopes

Naturally occurring cerium($_{58}$Ce) is composed of 4 stable isotopes: ^{136}Ce, ^{138}Ce, ^{140}Ce, and ^{142}Ce, with ^{140}Ce being the most abundant The isotopes of cerium range in atomic weight from 119 u(^{119}Ce) to 157 u (^{157}Ce)

uses

It is a component of mischmetal, used in the manufacture of alloys for cigarette lighters. Ceriumoxide is used in incandescent gas mantles, as a glass polishing agent and as a catalyst in self-cleaning ovens.