

Muskan Gahlot



Properties



Ytterbium metal tarnishes slowly in air.



Mixtures of powdered ytterbium with polytetrafluoroethylene or hexachloroethane burn with luminous emerald-green flame.



Ytterbium dissolves slowly in water, but quickly in acids, liberating hydrogen gas.

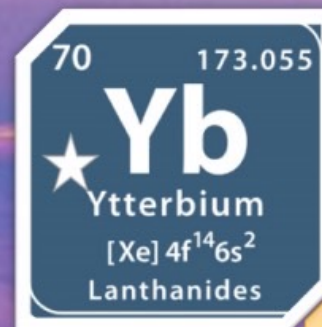


Ytterbium is quite electropositive and it reacts slowly with cold water and quite quickly with hot water to form ytterbium (III) hydroxide.

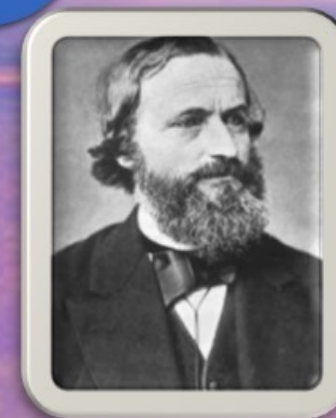
YTTERBIUM

Ytterbium compounds:

- ❖ Ytterbium (iii) chloride
- ❖ Ytterbium (iii) oxide
- ❖ Ytterbium (ii) chloride



Ytterbium was isolated in 1878 by Jean Charles Galissard de Marignac who was a Swiss chemist working at the University of Geneva at the time. Its discovery can be traced back to the oxide yttria. Origin of name: named after the village of "Ytterby" near Vaxholm in Sweden.



It is the fourteenth and penultimate element in the lanthanide series, which is the basis of the relative stability of its +2 oxidation state.



Boiling point: 1469 K (824°C, 2185°F)

Melting point: 1097 K (824°C, 1515°F)



It is the 44th most abundant element in Earth's crust.

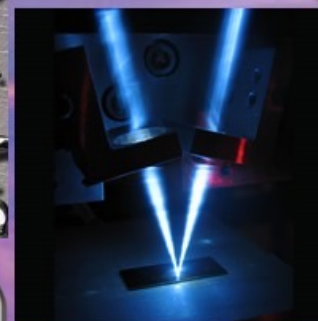
It is one of the most common rare earths, present at about 2.7 to 8 ppm in the crust.

It is common in the mineral monazite.

Uses: ytterbium metal has possible use in improving the grain refinement, strength, and other mechanical properties of stainless steel. One isotope is reported to have been used as radiation source substitute for a portable X-ray machine where electricity is unavailable. Few other uses have been found.

★ Isotopes of Ytterbium

- ★ Naturally occurring Yb is composed of 7 isotopes, ^{168}Yb – ^{176}Yb , with ^{174}Yb being the most abundant.
- ★ The isotopes of ytterbium range in atomic weight 147.967 u to 180.9562 u.
- ★ Twenty seven radioisotopes have been characterized, with the most stable being ^{166}Yb , ^{169}Yb , ^{175}Yb .
- ★ This element also has 12 meta states, with the most stable being $^{169\text{m}}\text{Yb}$.



DID YOU KNOW

★ *The world's most stable atomic clock is made with Ytterbium metal*