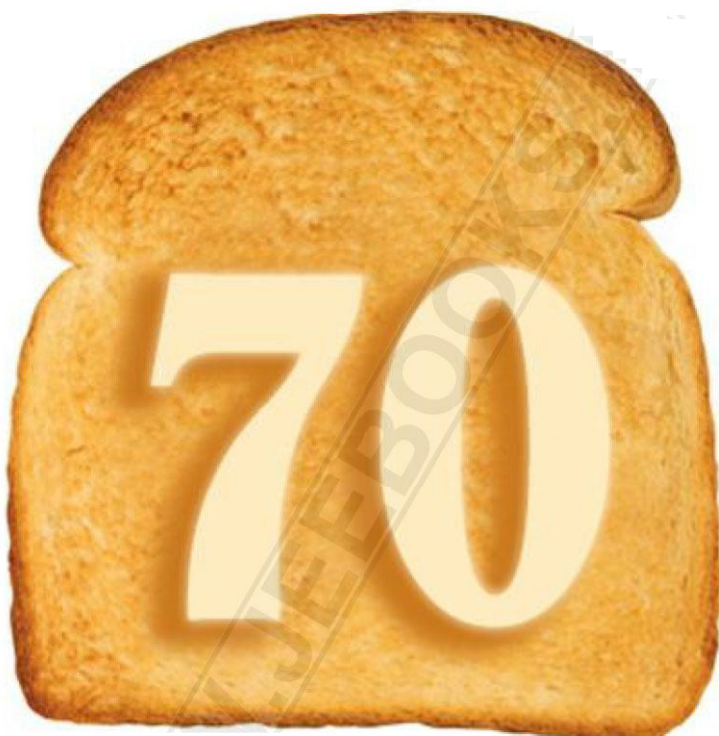


YTTERBIUM - Yb**70**

Atomic Number

**YTTER - BUTTER**

CLUE: The name 'Ytterbium' sounds similar to the word 'Ytter' that sounds like the word 'Butter' (Ytter-Butter). That is why butter is used in this picture. This picture shows that on a slice of bread butter is applied in the shape of number 70 that is the atomic number of element ytterbium.

Facts about Ytterbium

The name Ytterbium is taken from the **Ytterby mines** in Sweden, the source of gadolinite mineral from which ytterbium is obtained. Three other elements are named after this town, the others being yttrium, terbium and erbium. It is a soft, silvery white inner-transition metal that can be easily cut

Type of Element : Inner-transition Metal

Atomic Number : 70

Electronic : 2, 8, 18, 32, 8, 2 or

$1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^2 4p^6 4d^{10}, 5s^2 5p^6, 4f^{14} 6s^2$ or

$[\text{Xe}]^{54} 4f^{14} 6s^2$

Atomic Mass : 173.04 g/mol

Group, block : Not Applicable, f-block

Period : 6

Oxidation States : +2, +3

Isotopes : 7 (${}^{168}_{70}\text{Yb}$, ${}^{170}_{70}\text{Yb}$, ${}^{171}_{70}\text{Yb}$, ${}^{172}_{70}\text{Yb}$, ${}^{173}_{70}\text{Yb}$, ${}^{174}_{70}\text{Yb}$ and ${}^{176}_{70}\text{Yb}$)

Discovered by : Swiss chemist Jean Charles Galissard de Marignac
in 1878



Fibre Optic Cable

Uses of Ytterbium:

1. Ytterbium is used as a doping agent in fiber optic cable where it can be used as an amplifier.
2. Ytterbium is used as portable source of X-rays.
3. Ytterbium can be alloyed with stainless steel to improve some of its mechanical properties.

Multiple Choice Question

Question 70: The electronic configuration of ytterbium is;

- a) $[\text{Xe}]^{54} 4f^{11} 6s^2$ b) $[\text{Xe}]^{54} 4f^{12} 6s^2$
c) $[\text{Xe}]^{54} 4f^{13} 6s^2$ d) $[\text{Xe}]^{54} 4f^{14} 6s^2$