

# Phosphorus (P)

Atomic number: 15

Atomic mass: 30.974

Description: The name is derived from Greek 'phosphoros', meaning bringer of light.

Discovered by: Hennig Brandt in 1669

## Properties:

Melting point: 317.3K

Boiling point: 553.7K

Density: 1.823 g/cm<sup>3</sup> (white)

State: Solid

Group: 15

Period: 3

Block: p

Electronic Configuration: [Ne] 3s<sup>2</sup>3p<sup>3</sup>

Isotopes: <sup>31</sup>P

Allotropes: White P, Red P Black P, P<sub>2</sub>

Appearance: The two main forms of phosphorus are white phosphorus and red phosphorus. White phosphorus is a poisonous waxy solid and contact with skin can cause severe burn. It glows in the dark and is spontaneously flammable when exposed to air. Red phosphorus is an amorphous non-toxic solid.

## Uses:

- 1) White Phosphorus is used in flares and incendiary device. Red phosphorous is in the material stuck on the side of matchboxes, used to strike safety matches against to light them.
- 2) By far the largest use of phosphorus compounds is for fertilizers. Ammonium phosphate is made from phosphate ores. The ores are first converted into phosphoric acids before being made into ammonium phosphate.
- 3) It is also important in steel production.
- 4) Phosphates are ingredients in some detergents, but are beginning to be phased out in some countries. This is because they can lead to high phosphate levels in natural water supplies causing unwanted algae to grow.
- 5) Phosphates are also used in production of special glass and fine chinaware.

Source: [www.rsc.org](http://www.rsc.org)

