

Phosphorus (P)



Phosphorus is an essential element that belongs to the group of non-metals, like sulphur and nitrogen. It is a solid at room temperature and depending on its chemical structure, it has different properties and colours, such as white, red, violet, and even black. Together with potassium and nitrogen, phosphorus is widely used as a fertilizer in agriculture. It is extracted mostly from sedimentary phosphate rocks.

P

Phosphorus

[Ne] 3s² 3p³

Atomic number
protons/electrons

15

Neutrons

(most common isotope)

16

Atomic weight

(amu)

30.97

Atomic radius

(pm)

107

Functions/Health effect:

Phosphorus is an essential element for all living organisms. In humans, phosphorus is the second most abundant mineral after calcium, and about 85 % is stored in our bones and teeth. The rest is found primarily in DNA and the ATP molecule (adenosine triphosphate), which is the fundamental energy molecule for our cells. As a macronutrient, it is responsible for functions such as strengthening bones and teeth, keeping pH balance and transcription of genes, among many others.

Sources:

As a macro-element and building block of all living organisms, phosphorus is found in all foods. An adult male requires on average about 700 mg of phosphorus per day. Since most of the food contains phosphorus in great abundance, the recommended daily dose can be met simply by eating rich and healthy diet. Phosphorus deficiency is uncommon and is usually the result of severe illness or disorder.

Did you know that?

Phosphorus was the first scientifically discovered element which was isolated from urine by a German alchemist Hennig Brandt in 1669.

Every day, all the cells in your body collectively churn out about your bodyweight of ATP in the process called oxidative phosphorylation, which requires phosphorus. This means that if you weigh 70 kg, your body will make about 70 kg of ATP daily.

The name of this element comes from the Greek word phosphoros which means „The bringer of light“ because of the ability of white allotrope to glow in the dark.

Food
division

