

Phosphorus (PO₄)

What is phosphorus and where is it found?

Phosphorus (fos-for-us) is a nutrient found in all living things. It is also a mineral in nature. Both plants and animals have phosphorus in their bodies. It is in most of the foods we eat. When people buy fertilizer for



their gardens, they use nutrients such as phosphorus to help plants grow.

Some types of phosphorus are used for other purposes. Phosphorus is sometimes put into laundry detergents to clean clothing. In some states, this is no longer allowed.

What effect does phosphorus have on rivers?

Scientists believe that when too much phosphorus enters a river or lake, plants grow more. Tiny plants like algae use the phosphorus to grow. Other plants that live on the surface and bottom of a river or lake use phosphorus also. When plant growth increases, the water turns pea-green and becomes cloudy. The green color comes from the chlorophyll content of the tiny floating plants.

Too many plants living in the water can lead to some bad results. When these plants die (which, in the case of tiny plants or algae, is very often), they sink to the bottom. There, bacteria decompose the dead plant parts. They use up most of the oxygen in the water. They actually use more oxygen than the amount added by the plants through photosynthesis. Therefore, too many plants in the water from too much phosphorus leads to less oxygen.

This is what happens when too much phosphorus enters the water:

1. Phosphorus enters the water.
2. Plants take up the phosphorus and grow too much.
3. Smaller plants (algae) die and sink to the bottom.
4. Bacteria at the bottom decompose the dead plants, using up the oxygen in the process.
5. Oxygen levels drop, killing fish or aquatic insects.
6. Phosphorus continues to enter the water.
7. The cycle continues.

Why is pH important?

PO₄ enters the water from a number of places. It is found when human and animal wastes are flushed into waterways, either from poorly treated sewage, broken pipes or runoff. Some industrial wastes also carry PO₄ into the water. Whenever trees and grass are removed from an area, soil erodes into waterways carrying PO₄ also. Fertilizers used at homes on lawns and on farm fields carry much of the PO₄ in the fertilizer into streams when it rains. Too much PO₄ affects rivers less than lakes or ponds. Since rivers flow, the PO₄ is carried downstream.



