

# **WATER POLLUTION and CONTROL**

## Natural Water Pollution Control

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Water quality professionals often categorize water pollution control processes as *physical, chemical, or biological*.

Physical processes rely on the physical separation of pollutants from the water,

Chemical processes rely on chemical reactions,

Biological processes rely on living organisms to break down waste materials.

## Sedimentation

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Water quality professionals use the natural process of sedimentation in controlled settings to remove suspended pollutants from the water.

**Sedimentation** is a *physical* treatment process.

## Biodegradation

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Biodegradation is one of the fundamental processes in nature responsible for recycling nutrients, such as carbon, nitrogen, and phosphorus.

Communities and industries rely on biodegradation in controlled settings to break down and remove waste materials from their wastewaters.

When biodegradation is used in a controlled setting to treat wastewater it is called *biological treatment*.

## Filtration

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Communities and industries use filtration in controlled settings for water pollution control.

Municipal and industrial treatment plants employ racks, screens, filters, and beds of sand to filter out different sizes of particles from wastewater.

Filtration is another example of a *physical treatment* process.

## Absorption

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Absorption, is the process where one substance is taken into another. Some of the materials found in nature, like certain types of soil and vegetation, are good at absorbing pollutants

Soils containing organic materials such as peat moss and decaying vegetation remove some types of organic pollutants by absorbing them.

## Sorption

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Another natural process, similar to *absorption*, is called *adsorption*.

Adsorption is the process where one material simply adheres to the surface of another material.

Absorption and adsorption occur together in nature and it is difficult and usually unnecessary to distinguish the two. When these two processes are combined, the resulting process is simply called **sorption**.

**Sorption** is a combined *physical and chemical treatment* process.

## Stormwater Treatment

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A variety of methods are available for controlling and preventing stormwater pollution.

Some use new applications of the fundamental treatment processes as sedimentation, biodegradation, filtration, and sorption—and some rely on new and old erosion control techniques.

## References

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- Anonymous 2002. Clean Water-An Introduction to Water Quality and Water Pollution Control Ed. By Kenneth M. Vigil.— 2nd ed., Columbia.