

Reverse Osmosis - Theory & Real-life Applications

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Concepts

- Theory
 - Osmosis
 - Reverse Osmosis
- Applications
 - Desalination
 - Recycle & Reuse Waste Water (NEWater)

Understanding Reverse Osmosis

Reverse osmosis, commonly referred to as RO, is a process where you demineralize or deionize water by pushing it under pressure through a semi-permeable reverse osmosis membrane.

Osmosis

To understand the purpose and process of Reverse Osmosis, you must first understand the naturally occurring process of Osmosis.

Osmosis is a naturally occurring phenomenon and one of the most important processes in nature. It is a process where a weaker saline solution will tend to migrate to a strong saline solution. Examples of osmosis are when plant roots absorb water from the soil and our kidneys absorb water from our blood.

Below is a diagram which shows how osmosis works. A solution that is less concentrated will have a natural tendency to migrate to a solution with a higher concentration. For example, if you had a container full of water with a low salt concentration and another container full of water with a high

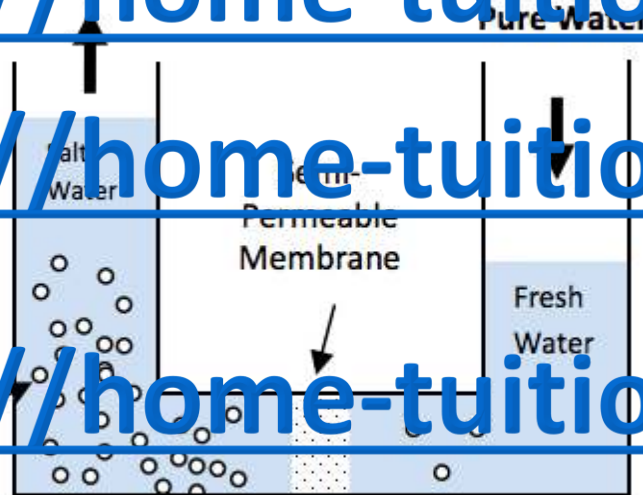
Osmosis

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Contaminants



Direction of Water Flow

salt concentration and they were separated by a semi-permeable membrane, then the water with the lower salt concentration would begin to migrate towards the water container with the higher salt concentration.