

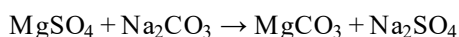
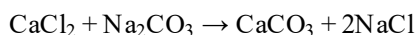
Removal of Permanent Hardness of water

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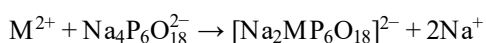
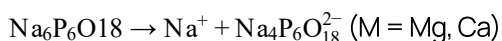
DEFINITION

Methods to remove permanent hardness

Washing soda process: Hard water is treated with a calculated amount of washing soda when chlorides and sulphates of calcium and magnesium present in hard water get precipitated as insoluble calcium and magnesium carbonates which can be filtered off.



Calgon's method: Sodium hexametaphosphate ($\text{Na}_6\text{P}_6\text{O}_{18}$), commercially called 'calgon', when added to hard water, the reaction is as follows:-



The complex anion keeps the Mg^{2+} and Ca^{2+} ions in solution.

EXAMPLE

Removal of hardness of water

There are a number of methods to remove the hardness present in water. A few methods to remove hardness from water are,

Chemical Process of Boiling Hard Water

Adding Slaked Lime (Clark's Process)

Adding Washing Soda

Calgon Process

Ion Exchange Process

Using Ion Exchange Resins

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Class 9

Class 10

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Class 11 Engineering

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