



19CH101- ENGINEERING CHEMISTRY

Unit-1 WATER AND ITS TREATMENT

SOFTENING OF WATER

The process of removing hardness producing substances from water is known as softening of water. Softening of water can be done in two methods. They are

- I. External treatment(or)External conditioning method
- II. Internal treatment(or)Internal conditioning method

INTERNAL TREATMENT OF BOILER FEED WATER (OR) BOILER COMPOUNDS

Internal treatment (or) internal conditioning refers to the treatment of water in the boiler itself. This treatment consists of adding chemicals directly to the water in the boiler for removing dangerous scale forming salts which were not completely removed by the external treatment for water softening. These chemicals convert the scale forming substances into insoluble precipitates(or) soluble complexes. These chemicals are also called boiler compounds.

Some important internal conditioning methods are

- Phosphate conditioning
- Carbonate conditioning
- Calgon conditioning
- Colloidal conditioning



EXTERNAL TREATMENT OF BOILER FEED WATER

In external treatment process, the hardness producing salts are removed before feeding the water into the boiler. The external treatment process can be done by any one of the following methods.

1. Zeolite (or) Permutit process
2. Ion exchange (or) Deionization (or) demineralization process
3. Soda lime process

The above methods of softening are not only used for boiler feed water but also for domestic and industrial use.