

#### PRESSURE SAND FILTER :

In this type of plants the raw water having a high suspended solids and turbidity is passed through the layers of graded quartz silex and the treated water is free from suspended solids and turbidity. Pressure sand filter has varied applications in the process industries and chemical industries as pre filter for further chemical treatment of the water and at public health system and swimming pool filtration.



#### ACTIVATED CARBON FILTER :

The water having abnormal taste, odour and colour is passed through activated charcoal where due to adsorption properties of the charcoal, contaminations related to the taste, odour and colour are removed. This filter find the applications in the potable water filtration system, in the process industries where water is to be pre filtered for further chemical treatment such as softening and demineralizing.

#### WATER SOFTENER :

The raw water having high hardness is passed through a sodium based cation resin where the hardness related Calcium and Magnesium ions are replaced with the sodium ions of the resin and the treated water coming out is of commercial zero hardness. This type of plants are used in all the process industries where water of low or zero hardness is required for the process such as in textiles, as feed water for boilers and cooling towers etc.



## WATER DEMINERALIZERS :

These are the water treatment plants where the raw water having a high concentration of total Dissolved Salts is passed through a hydrogen based cation resin where all the positive ions of the water are replaced with hydrogen ions from the resin. Thus the water coming out is free from all the unwanted positive ions. The partial treated water is then passed through a hydroxyl based anion resin where all the negative ions of the water are replaced with hydroxyl ions from the resin, the water coming out is free from unwanted negative ions. The treated water is of very high purity with zero hardness and negligible total dissolved salts. The Demineralizers find their application in various industries such as textiles, food, fine chemicals, electroplating and pharmaceuticals.



## ULTRA VIOLET STERILIZER :

This is the system where water having large number of pathogenic bacteria is passed through ultra violet radiation, the exposure of UV rays to the water kills bacteria without affecting the physical and chemical properties of the water.



## REVERSE OSMOSIS :

Reverse Osmosis plants find their application from desalination of sea water to making ultrapure water for pharmaceuticals and packaged drinking water.

Industrial reverse osmosis use spiral wound membranes mounted in high pressure containers. The membrane stack is two, very long semipermeable membranes with a spacer mesh between them that is sealed along the two long sides. This is then wound up in a spiral tube with another spacer to separate the outside of the stack. The spiral winding provides a very high surface area for transfer. Between each membrane layer is a mesh separator that allows the permeate (pure) water to flow. Water is forced in one end of the spiral cylinder and out the other end. Backpressure forces the water through the membrane where it is collected in the space between the membranes. Permeate then flows around the spiral where it is collected in the center of the tube.

