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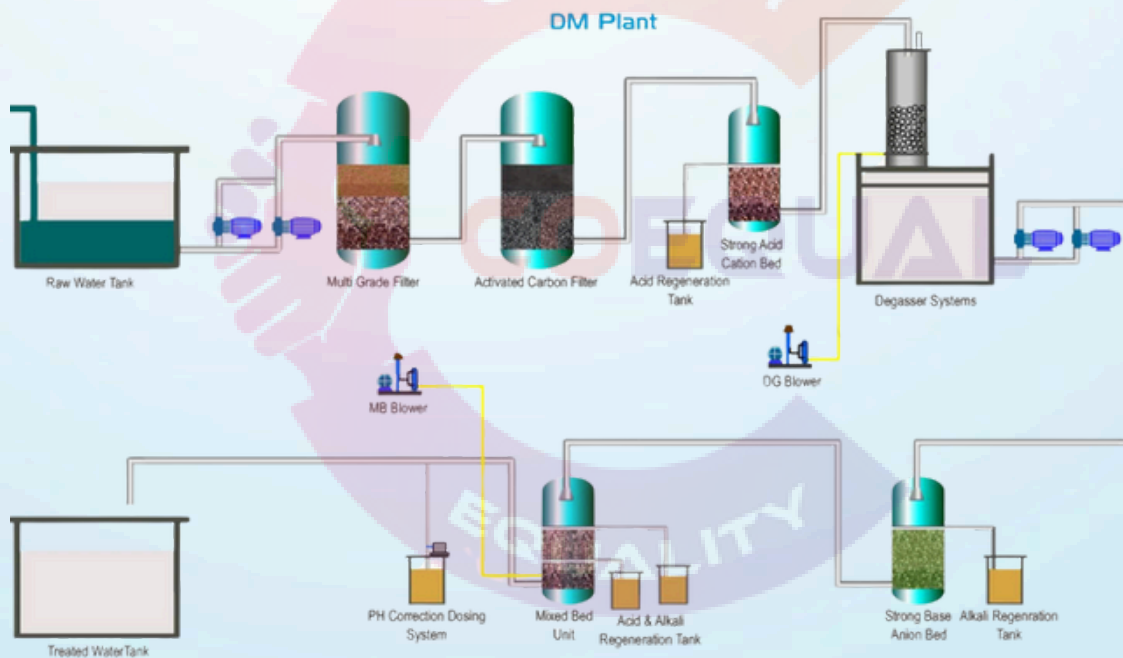


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# Demineralization water treatment plant:

A demineralization water treatment plant, also known as a deionization (DI) plant, removes dissolved minerals and ions from water. The resulting water is called demineralized water or deionized water.

## Demineralization Water Treatment Plant BT Water Treatment



DM Plant is an Ion exchange technology used to remove salts (cations and anions) from water.

Soluble chemical compounds, when dissolved in water, become ionized; that is their molecules dissociate into positively and negatively charged components called ions.

## Dual Media



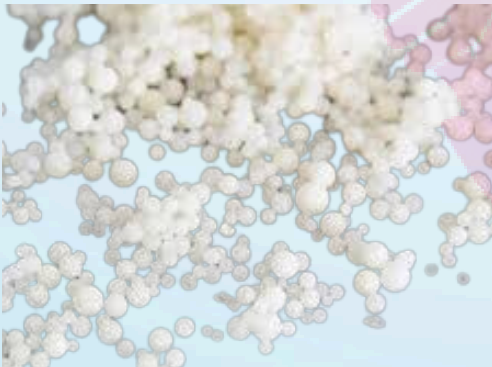
A dual media filter is a water treatment device that removes suspended solids, turbidity, organic matter, and color from water. It's also known as a sand-anthracite filter or multimedia filter. A DMF has a layered bed of filter media, including sand and anthracite or activated carbon. Water flows down through the filter bed, where the suspended matter and turbidity are trapped on the sand surface.

## Activated Carbon Filter



Activated carbon which is used as medium to remove contaminants is natural material derived from coconut shell, lignite, bituminous coal etc. further, activated by chemical or steam under absence of oxygen with high temperature around  $1000^{\circ}\text{C}$ . Specific contaminants can be removed by employing blends of various carbons. Activated carbon filters can be used in demineralization processes. Activated carbon filters are used to remove organic compounds and chlorine from water, making it suitable for use in manufacturing or discharge.

## Weak Acid Cation



Weak acid cation resins are used primarily for softening and dealkalization of high-hardness, high-alkalinity waters, frequently in conjunction with SAC sodium cycle polishing systems. Weak acid cation (WAC) resins are a type of ion exchange resin that are used in water treatment to remove cations associated with alkalinity, or temporary hardness. WAC resins work by swapping cations for hydrogen ions, which results in a slightly more acidic treated stream.

## Strong Acid Cation



Strong acid cation (SAC) exchange resins are ion exchange resins that are commonly used in water treatment systems. They are used to remove hardness ions like calcium ( $\text{Ca}^{2+}$ ) and magnesium ( $\text{Mg}^{+}$ ) from water. They are composed of a polymer matrix to which anionic functional groups are bound, such as sulphonate ( $\text{SO}_3^-$ ). SAC resins are regenerated with either a sodium salt solution ( $\text{Na}^{2+}$ ) for softening applications.

## Degassing Tower



DG tower, or degassing tower, is a device that removes carbon dioxide and other gases from water.

- Water is passed over a large surface area while air is blown against the flow. The air pressure causes carbonic acid in the water to dissociate into carbon dioxide and water. In any demineralization plant Degasser Tower in Pune plays an important role, where it is generally placed between cation and anion transactions and reduces Carbon Dioxide.

## Weak Base Anion



A weak base anion (WBA) is an ion exchange resin that can remove organic acids, mineral acids, and other organic materials. WBA resins are more chemically stable than strong base anion resins, and they are easier to regenerate.

Weak base anions are more chemically stable than strong base anions and are used for the removal of mineral acids, organic acids and other organic materials.

## Strong Base Anion



Strong-Base Anion (SBA) exchanger containing Type-II quaternary ammonium groups are used for dealkalization, deionization, demineralization, desilicizers and organic removal. SBA's have excellent operating capacity and good kinetics even when regenerant levels are comparatively low.

## Mixed Bed



A mixed bed is a vessel that contains a mixture of cation and anion exchange resins. When water passes through the resin, the cation resins remove positively charged ions (cations) like calcium, magnesium, and sodium. The anion resins remove negatively charged ions (anions) like chloride, sulfate, and nitrate. This process produces highly purified, deionized water.





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