

Summary of Treatment/Removal Processes

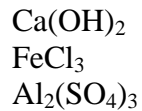
Organics/xenobiotics - activated carbon (granulated or powdered charcoal)

Hardness ions ($\text{Ca}^{2+}/\text{Mg}^{2+}$) - ion exchange, electrodialysis, reverse osmosis

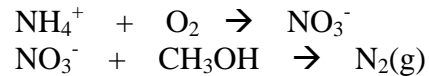
Iron/Manganese ($\text{Fe}^{2+}/\text{Mn}^{2+}$) - aeration (oxidation to insoluble forms), settling/floc

Heavy Metals (Cd^{2+} , Pb^{2+} , ...) - lime treatment (precipitate metal hydroxides)
- sulfide treatment (precipitate metal sulfides)
- activated carbon to remove chelators

Phosphorous reduction - biological (incorporated into biomass)
- chemical additives (precipitation)



Nitrogen reduction - nitrification/denitrification



Air stripping of $\text{NH}_3(\text{g})$ at high pH

