



PRODROMOS
T e c h n o l o g i e s

Application of Prodromos SSS Technology Demineralisation Waste Reclamation

Prodromos has developed a breakthrough process technology to convert Sodium Sulphate (Na_2SO_4) back to its acid and base components of NaOH and H_2SO_4 . This presents a substantial opportunity in the recovery of ion exchange effluents.

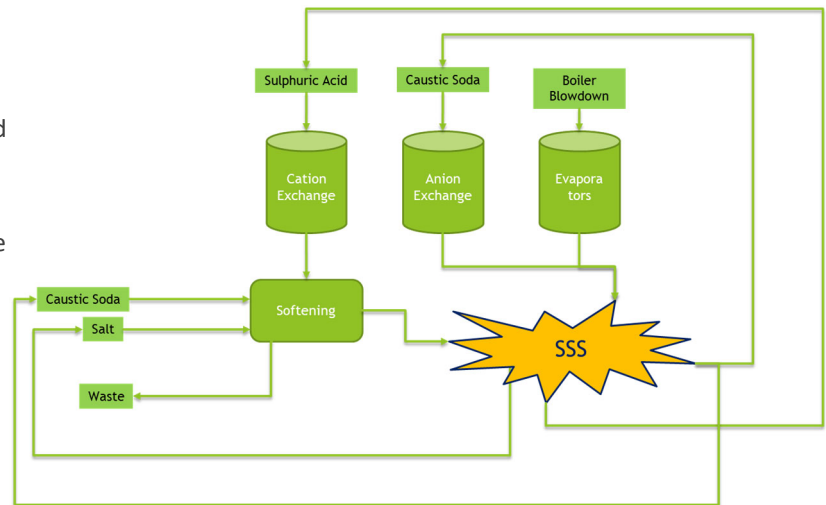
THE OPPORTUNITY

Demineralisers remove all ions from feed water to produce boiler feedwater (BFW). Cation exchangers swap cations (Ca, Mg, Na) for H^+ and anion exchangers swap anions (SO_4 , Cl) for OH^- .

When the resin beds are fully loaded, feed is stopped and the resin must be regenerated. The cation exchanger is regenerated with sulphuric acid, replacing the cations on the resin with hydrogen. The anion resin is regenerated with caustic soda, replacing the anions on the resin with hydroxide ions. The regenerant waste becomes part of the site effluent. The site may also produce boiler blowdown, concentrated through evaporators, forming a mixed NaCl / Na_2SO_4 solution, also finding its way to the wastewater system.

Our SSS process enables the conversion of these waste streams to NaOH , H_2SO_4 and NaCl , all to be reused within the process. Depending on site balances, most if not all of the caustic soda and sulphuric acid requirements can be recycled.

This allows for substantial savings in chemical purchases and a significant reduction in waste production.



TECHNOLOGY APPLICATIONS

1. Spent Caustic Treatment
2. Paper & Pulp—Kraft Mills
3. Mine Water Treatment
4. Demineralisation Wastewater
5. Textile Industry—Rayon Manufacturing
6. Hydro-Desulphurisation
7. Flue Gas Desulphurisation

KEY BENEFITS

1. **Environmental**
 - ⇒ Waste Reduction
 - ⇒ Reduced salt discharge/accumulation
2. **Improved Sustainability**
 - ⇒ Own Input Chemicals from Waste
 - ⇒ Circular Economy
 - ⇒ Reduced Reliance on Suppliers
3. **Improved Bottom Line**
 - ⇒ Reduced Waste Disposal Cost
 - ⇒ Reduced Input Chemical Cost



Redefining Reality, Providing Possibility
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