



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

Application of Prodromos SSS Technology Spent Caustic Treatment

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 dealing with spent caustic streams from oil refineries.

THE OPPORTUNITY

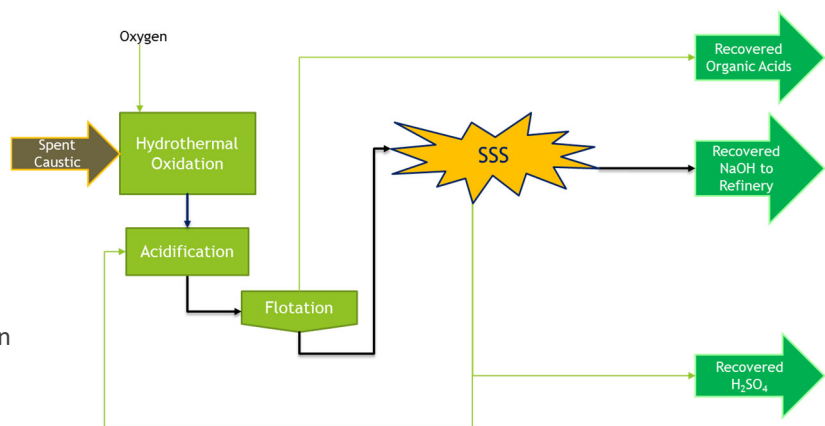
Caustic soda solutions are used in refinery applications for the removal of sulphur, mercaptans, naphthenates and cresylates from process streams. These processes use high cost NaOH and produce waste streams that are disposed at high cost.

We recommend the combination of hydrothermal oxidation with our Sodium Sulphate Splitting technology to treat these streams. Hydrothermal oxidation with oxygen converts sulphides to sulphates, whilst also forming organic sodium salts.

Through the addition of sulphuric acid, organic salts are converted to organic acids that is recovered through flotation, leaving a sodium sulphate containing aqueous stream.

This solution is fed into our SSS technology to form caustic soda which is reused in the refinery, and sulphuric acid that is used for acidification with the excess sold into the market.

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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