

Miscellaneous

Title: The Electrolytic Production of Caustic Soda and Elemental Sulphur from Waste Sodium Sulphate

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Abstract: In the last years several technologies have been proposed for the production of caustic soda without producing chlorine. The most available raw material is sodium sulphate, a by-product coming from chemical industries. The salt splitting of sodium sulphate solution is able to produce caustic soda , but gives, as a by-product, a diluted solution of sulphuric acid of low marketability. Also the energy consumption per ton of caustic soda is considerable. A possible solution to these problems we propose a new technology which changes the anodic reaction of O₂ evolution with a different reaction, reducing the cell voltage and forming a product more storeable and saleable than sulphuric acid. This new technology is based on the chemical conversion of Na₂SO₄ in Na₂S with a reactant that is regenerated. the Na₂S solution is fed into the anodic compartment cell with one membrane. The elemental sulphur is formed in the anodic compartment, with the NaOH is produced in the cathodic