

## Sodium chlorate technology

### Pioneers in sodium chlorate technology

Chemetics' sodium chlorate plant design combines a well-established technology with experienced engineering, backed by close technical support, to ensure security of product supply and a long plant life.

Chemetics is a leader in the supply of sodium chlorate plants, working closely with its customers over the life of their projects to define and design optimum chloralkali production facilities. The finished product is a plant which is safe, reliable and efficient. Particular emphasis is placed on optimizing capital and operating cost. The plants include numerous innovative features unique to Chemetics' designs.

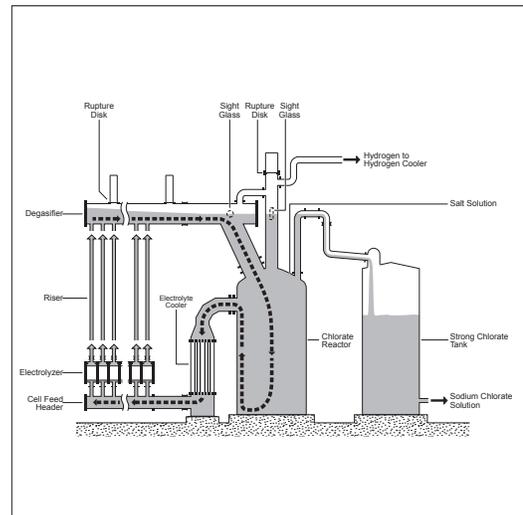
Chemetics' electrolytic system consists of electrolyzers, a reactor, a cooler and the inter-connecting piping. When direct current is applied, the hydrogen gas produced displaces liquor and reduces the specific gravity of the electrolyser and outlet piping contents. The resultant specific gravity differential between the liquor in the electrolyser and that in the reactor creates a high rate of circulation without the use of a large alloy pump.

This natural circulation system for chlorate production, developed by Chemetics, provides the desired flow rate through the cells which is necessary for efficient operation. The heat produced in the electrolyzers is removed by an external cooler, which maintains the electrolytic system at its optimum operating temperature. The reactor is designed to provide the retention time required for conversion of intermediate reaction products to sodium chlorate.

Sodium chlorate electrolyser



Cellroom circulation schematic

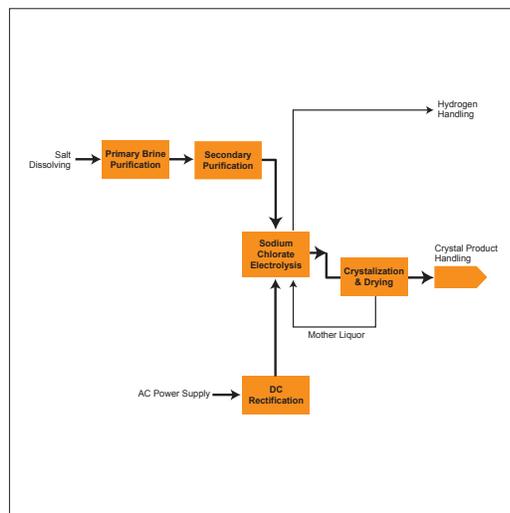


The sodium chlorate production rate is controlled by varying the direct current to the electrolyzers and the desired chlorate/chloride concentration in the product is achieved by adjusting the brine feed to the system and by regulating the quantity of water evaporated from the process by the chlorate crystalliser. The chlorate solution product is displaced from the reactor and flows by gravity to the downstream plant areas.

Our sodium chlorate plants can be tailored to meet each client's individual needs by the option selection of the following:

- Number of electrolyzers
- Number of cells per electrolyser
- Size of cell and its anode area (m<sup>2</sup>)
- Operating current density (kA/m<sup>2</sup>)

Sodium chlorate block diagram



Chemetics' multi-monopolar cell sodium chlorate plant represents the state-of-the-art in materials of construction, performance and operability.

Chemetics has been successful in assisting our customers in leveraging a competitive advantage by supplying safe, reliable, and price competitive plants throughout the world for close to 40 years. With our in-depth technical expertise and experience in sodium chlorate technology, plant design, and project execution, Chemetics has the necessary capability to deliver superior value and quality to our customers and their projects.

#### Features:

- Highly efficient design for minimum power consumption.
- Compact electrolyzers designed for minimum space requirements.
- Optimization of cell parameters such as electrode sizes, thickness, electrolytic gap and anode coating options.
- Durable materials of construction for low maintenance and long service.
- Proprietary steel cathode material to prevent hydrogen blistering in service.
- Technical service and warranty program on anode coatings and electrolyser components.