

PROJECT PROFILE SERIES # 4

VENEZUELAN INDUSTRIAL COMPLEX SELECTS EVAPORATOR FOR COST EFFICIENT CONCENTRATION OF CAUSTIC SODA

The Facility

Located along the Gulf of Venezuela's inner coastline in the western part of the country, an enormous industrial complex is in operation consisting of many independent chemical and process plants. Each plant in the complex is either owned by or participating in a joint venture with the Venezuelan National Oil Company.

The Problem

One plant in the complex produces caustic and chlorine products for commercial and industrial customers in domestic and international markets. To reduce transportation costs and provide the product in a more useable form, the caustic is concentrated from 32% to 50%.

The Solution

Aqua-Chem ICD designed a three-effect evaporator, providing the optimum system combination for reduction of operating and capital costs. The material in contact with the first two effects is nickel. This material, appropriate for caustic preliminary concentrations, conserves capital costs. For a long service life the third effect is constructed of 304 Stainless Steel.

The Results

The system was delivered and installed prior to other major plant components. The capacity and economy guarantees have exceeded all expectations.



Three-effect 20,000 kg/h caustic soda evaporator installed at a chemical complex in Maracaibo, Venezuela.

Technical Data

Full scope customized contract for proprietary process design and details. Full system supply including code vessel design and supply, system designing, drafting, manufacturing, complete fabrication and assembly of process piping/valving/instrumentation for self-standing and operable plant. All of this scope was performed within Aqua-Chem ICD facilities.

Flow Diagram

The system is a straight backward feed, with feed entering effect #3 at a concentration of 32 wt% and exiting effect #1 at 50 wt%. The steam condensate is returned to the boiler for reuse. The distillate produced is fairly high purity and following heat exchange with the incoming feed is used elsewhere in the plant.

