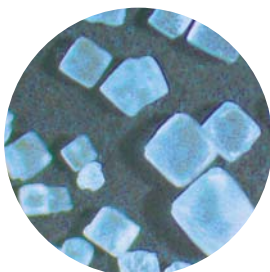


Alkim Alkali Kimya A.S. – Çayırhan, Turkey Sodium Sulfate Evaporation & Crystallization System

The Client

Alkim Alkali Kimya A.S., headquartered in Istanbul, Turkey, is a diversified producer of chemicals such as sodium sulfate, salt, and fertilizer products with several mining and production facilities throughout Turkey.

Alkim enjoys sales, both domestically in Turkey and in neighboring countries such as Romania, Bulgaria, Greece, Syria, Lebanon, Egypt, Saudi Arabia, Libya, Tunisia, and Israel.



The Client's Needs

Alkim Alkali Kimya A.S. is one of the largest chemical producers in the region and produces chemicals such as various grades of sodium chloride, magnesium compounds including Leonite. However, natural sodium sulfate is the largest single product offered by Alkim Alkali Chemicals. It was the original product that began the company in the early 1960's.



Project Description

Deciding to expand its capacity in sodium sulfate production up to 330,000 tons annually, Alkim put plans forward to develop Glauberite deposits in Çayırhan. The company, after lengthy research, developed a unique extraction method of underground deposits using proprietary solution mining techniques.

Once mined, the Glauberite could be converted to anhydrous sodium sulfate as the end product. Alkim selected Veolia Water Solutions & Technologies to design and supply the system to process the deposits into purified sodium sulfate. Veolia's HPD crystallization technology has a proven history of successful installations that provide both purification of natural deposits as well as by-product recovery of high-quality sodium sulfate.

CHEMICAL INDUSTRY

CASE STUDY

Process & System Description

The facility at Çayırhan, near Ankara, is designed to produce 120,000 tpa (tons per annum) of refined sodium sulfate.

The process begins with solution-mined Glauberite from natural deposits that are converted to Glauber's Salt as the first purification step. This is accomplished in a four-effect, HPD forced circulation crystallization system, also provided by Veolia.

The Solution

The Glauber's Salt is then transferred to a melter, which produces a slurry as feed to the crystallization system. This slurry is then re-crystallized and sent to the solids handling system as the final step.

The end product is anhydrous sodium sulfate that meets stringent quality requirements for both purity and crystal size to Alkim standards.

System Highlights:

- > Multiple-effect , MSMPR-type crystallizer
- > Efficient, four-body system utilizes facility steam for five-effect steam economy
- > Vapors from crystallization system also drives the Glauber's Salt melter
- > Fully-automatic process controls integrated with balance of the plant



The Results

Despite difficult weather conditions during the execution phase of the project, plant startup began in December of 2011.

The anhydrous sodium sulfate crystallization system is performing as specified by Alkim.