

Sulphuric acid production involves **exothermal steps** which generate heat. While removing this heat costs water, chemicals, power and maintenance, **heat recovery** provides the means to harness it for other useful purposes.

### RECOVERING ABSORBER HEAT

Worley Chemetics (Chemetics®) Energy Solutions consist of four options to recover the energy released during the absorption of  $\text{SO}_3$  and/or water to sulphuric acid.

- CES-ALPHA™
- CES-BFW™
- CES-HWS™
- CES-DSW™

These add-on processes allow for up to 99% of the energy to be recovered in the sulphuric acid plant, which provides an improved economical alternative to purchased heat.

CES-ALPHA™ (ALPHA®) converts waste heat from the inter tower into useful MP steam (5-10 barg), with a **production rate of up to 0.55 tons of steam / ton of acid.**

### SAFETY AND AVAILABILITY

The ALPHA® system produces steam from energy released during the absorption of  $\text{SO}_3$  into the strong acid in the ALPHA® tower, with a focus on:

- **Safety**

With high operating temperatures, the ALPHA® system must be tightly controlled to prevent corrosion and safety risks.

- **Maximum Availability**

The ALPHA® system must not reduce the availability of sulphuric acid production, given that lost production costs of the main acid plant can quickly exceed the value of ALPHA® steam produced.



### GET IN TOUCH

chemetics.info@worley.com

Tel. +1 604 734 1200

[WORLEY.COM/CHEMETICS](http://WORLEY.COM/CHEMETICS)

# CES-ALPHA™

## SYSTEM BENEFITS

### True Add-on System

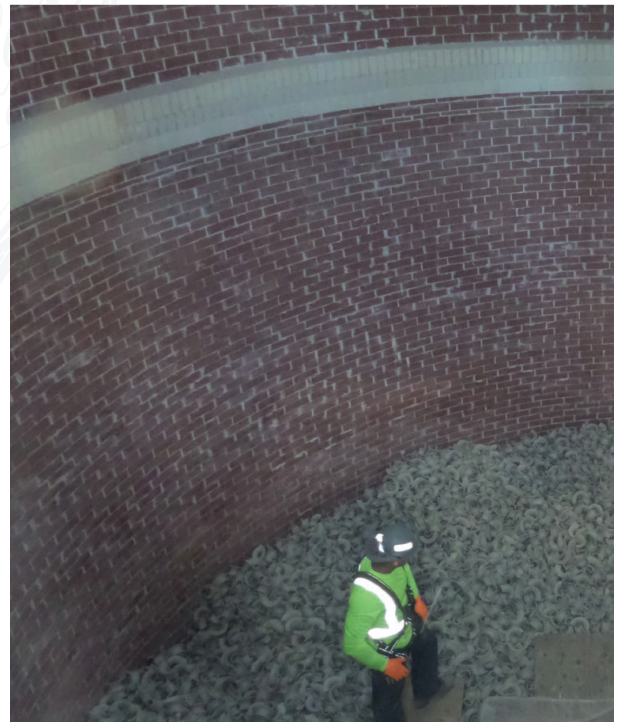
With separate ALPHA® tower and absorber tower, acid plants can fully function with ALPHA® on or off, simplifying start-ups and shutdowns, and maximizing annual plant acid production.

### Automatic, Safe Shutdowns

ALPHA® is designed to safely contain hot sulphuric acid during plant upset conditions via brick-lined SARAMET® HT alloy tower and pump tank construction. ALPHA® controls automatically shut down the ALPHA® system, but not the main acid plant. Acid and water are automatically separated, protecting the metallic equipment from corrosion.

### Safe Water Dilution

Water dilution is done within the brick-lined ALPHA® tower or pump tank, where the higher mass of acid and equipment eliminates vibration concerns.



### SARAMET® HT Austenitic Stainless Steel

Used for the ALPHA® tower, ducting, acid piping and ALPHA® boiler. This alloy has provided exceptional reliability in hot sulphuric acid service for over 20 years.

### SARAMET® HT+ Austenitic Stainless Steel

Offered as an upgrade for the piping and ALPHA® Boiler. This custom-produced alloy has demonstrated superior corrosion and erosion resistance properties in hot sulphuric acid service at concentrations above 98.5 wt% and temperatures up to 250°C.

