

# H<sub>2</sub>SO<sub>4</sub> Dilution

Ways to improve operations and profitability

## CASE STUDY #50

PRIMIX static mixers offer an excellent and robust solution to dilute Sulphuric Acid and control the temperature rise due to the exothermic reaction heat.

### THE RESULT

- Controlled process
- Low investment
- Downstream piping protected

**PRIMIX**<sup>™</sup>  
PERFORMANCE BY DESIGN

## Background

In many chemical processes concentrated Sulphuric acid is diluted with water to the required concentration. Applications can be found in the chemical industry but also in the in-situ extraction process of minerals.

## The Challenge

Diluting Sulphuric acid is an exothermic reaction. Local hot spots can damage the piping material, especially at the injection point. Chemical resistant materials as Hastelloy® C276 are expensive solutions. Could a combination of PTFE lined pipe components and PRIMIX' knowledge of static mixers be combined and offer an excellent mixing solution for this application?

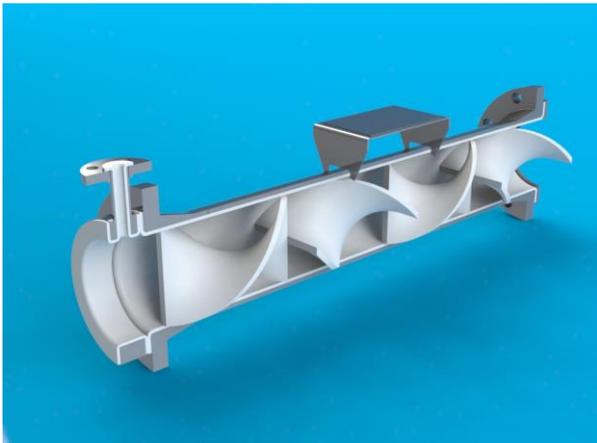
## Design

PRIMIX uses PTFE lined CS or SS pipes as mixer housing. Combined with solid PTFE mixing elements, it results in a rigid design that lasts for many years in a severe environment. The mixing elements are retained by a PTFE retaining ring at the outlet of the mixer.

The Sulphuric acid is injected by a PFA lined CS or SS Tee. Where required an injection valve can be installed in the injection Tee. The injection valve itself is made of solid PTFE with a Hastelloy® spring.

## Solution

PRIMIX offers complete static mixer assemblies for the dilution of Sulphuric acid. The mixers are designed dedicated to your application and offer a typical pressure drop below 0.5bar. The design has a proven track record with several hundred units installed world wide.



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