

Unlock Profitable Growth in Sulfuric Acid Regeneration

Let Us Help You Improve Throughput and Lower Emissions

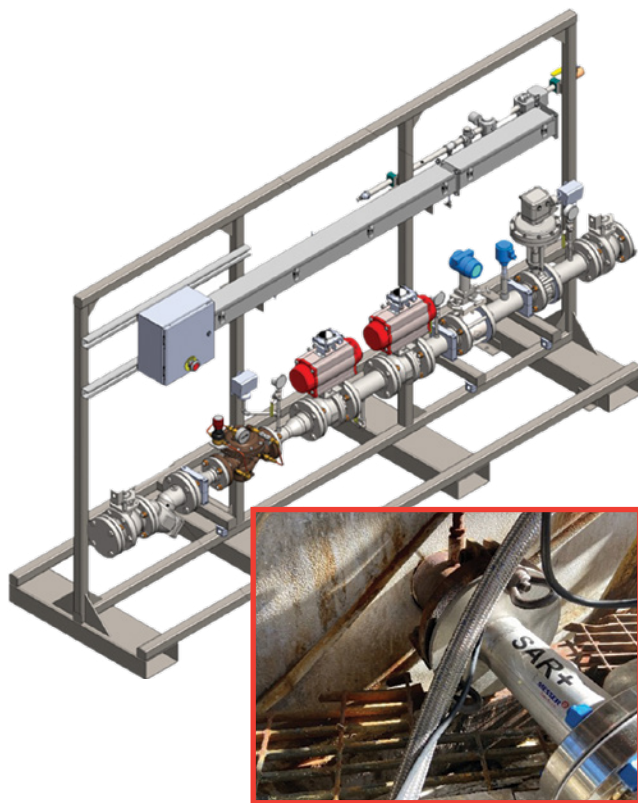




Address Your Challenges

Are your SAR operations challenges hindering your growth potential and decarbonization goals? We understand the complexities you face:

- **Untapped Sulfur Sources:** Exploring the use of more cost-effective sulfur sources, such as spent acid, remains an unrealized opportunity.
- **Barriers to Increased Throughput:** Bottlenecks like volumetric flow restrictions into and out of the furnace or catalytic converter fan limitations are impeding your spent acid processing and sulfuric acid production.
- **Stringent Emission Standards & CO₂ Reduction Goals:** Sustainability targets for NO_x and SO_x emissions are becoming more difficult to achieve.
- **Quality Challenges:** Incomplete combustion of carbon compounds can produce unwanted particulate matter.



Proven Success

Our technology has helped a key player in the sulphuric acid industry to process 50% more spent acid and boost production up to ~10% and reduce emissions by retrofitting their furnace with our patent-pending oxygen technology. By strategically injecting oxygen based on results from Messer's Computational Fluid Dynamics (CFD) modeling, this long-term customer received a payback period well under two years.

Messer's two-step furnace evaluation will empower you to make data-driven decisions to meet your production and sustainability goals.

Data-Driven Operations Improvement

We're here to offer a seamless solution – an initial high-level furnace evaluation to determine if your facility is a candidate for our offering. Once we complete this review, we will then move to a more comprehensive SAR furnace evaluation to help you fully understand what benefits we can bring to your facility.



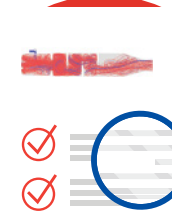
Step 1

Preliminary Furnace Evaluation

Our experienced team will start with understanding your process challenges and goals by walking you through a brief questionnaire. Then, they'll perform a high-level review of your furnace operations to quickly determine if your facility could benefit from our SAR+® offering. We'll review our findings with you to determine next steps.

Our brief questionnaire includes:

- Furnace Operating Conditions
- Firing Conditions
- Feeds
- Current Operational Challenges
- Desired Performance Improvements



Step 2

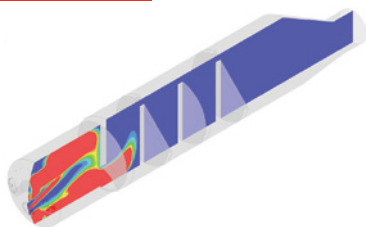
Comprehensive Furnace Evaluation

If we determine our SAR+ offering could benefit your operations, we will then move to a more comprehensive furnace review. Our process specialists will run more detailed simulations for different scenarios of your furnace. Once completed, we'll be able to share with you the benefits that we can bring to your operation, such as increased throughput, reduced emissions, and/or improved quality of your regeneration process.

To run detailed simulation scenarios we will collect more detailed information on:

- Furnace Dimensions
- Equipment Specifications
- Operating Conditions
- Emissions Data
- Process Limitations

CO Model



SO₂ Model

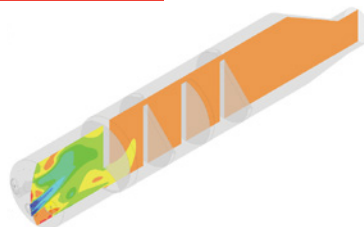


Figure 1: Examples of CFD modeling of a SAR Furnace.



At Messer, you matter.

Our purpose-built gas technologies focus on your success first. You need more than gases. You need what Messer can do for you. Take the first step towards a more efficient and sustainable future by partnering with our dedicated team for your SAR evaluation.

Why wait? Scan below to
connect with our
process specialist today!



SAR+® is a registered trademark of Messer Industries, USA, Inc.

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Gases for Life

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