

THE MAKING OF AN APPLIED SOLUTION:

Activity Tester Cabinet

A global leader in sulfuric acid plant technology was looking for a partner to help them navigate the gas delivery challenges associated with their highly complicated industrial chemical delivery processes. It was imperative that the gas delivery systems provider have a thorough understanding of the analytical testing complexities facing sulfuric acid plant operators, and the ability to deliver a custom equipment solution to support those highly specific needs.

Well-versed in complex process demands and known for its innovative equipment engineering expertise, AES was an ideal partner to deliver the distinct gas delivery solution that the customer required.

CUSTOMER CHALLENGE

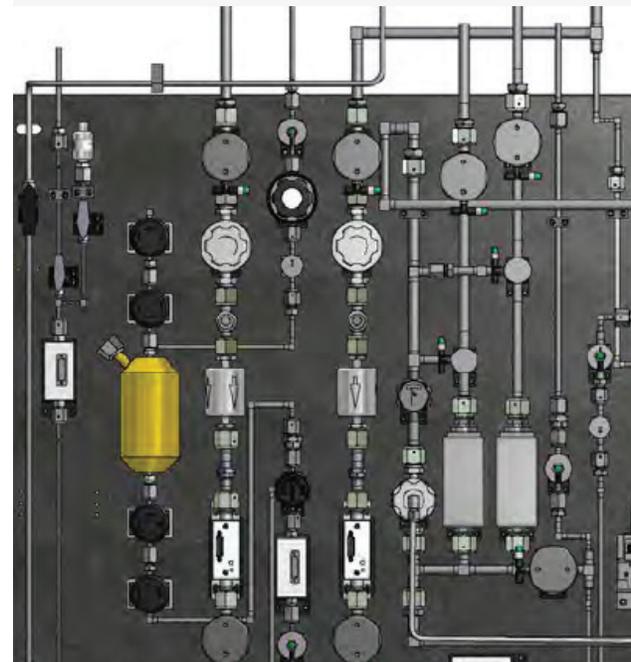
Operations demanded a gas system that could maintain very specific gas delivery conditions for testing and analysis of sulfuric acid within the plant environment, with high levels of reliability and safety to minimize the potential of compromised analytical results and mitigate user risk.

THE SOLUTION

Leveraging many of the components used in our standard SEMI-GAS® line of premier ultra high purity gas delivery cabinets, AES custom-engineered its Activity Tester Cabinet for sulfuric acid to include a one cylinder SO₂ source cabinet and one mixing cabinet.

APPLIED SOLUTION QUICK FACTS

- › **Product Brand Customized:** SEMI-GAS®
- › **Industry Served:** Industrial Manufacturing
- › **Application Focus:** Chemical Testing and Analysis
- › **Key Requirement(s):** Specificity to Sulfuric Acid Testing; Safety
- › **Gases Delivered:** Hazardous
- › **System Configuration:** One Cylinder Source Cabinet and One Mixing Cabinet with Mass Flow Controllers, Static Gas Mixer, and Micro Gas Analyzer



APPLIED SOLUTIONS

Key Construction Features

The fully automatic Activity Tester Source Cabinet was equipped with Allen Bradley controls, a transducer based pressure monitoring system, differential pressure gauge, and a Magnahelic and switch exhaust monitor to ensure adequate exhaust flow, as well as a Venturi Vacuum Generator to allow for evacuation of the manifold during purge sequences down to approximately 100 torr. A fully redundant silica bypass manifold was mounted to the side of the source cabinet to remove impurities prior to gas chromatograph analysis.

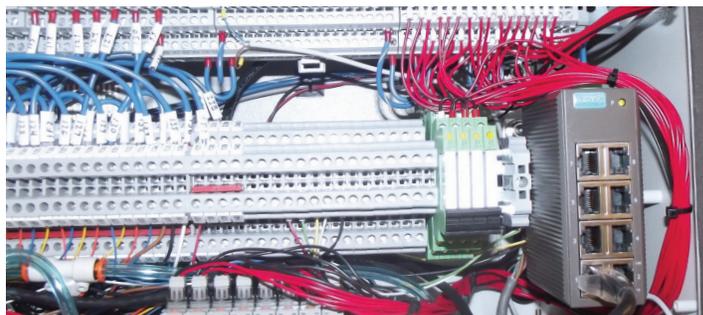
The Activity Tester Mixing Cabinet was equipped with Mass Flow Controllers and a Static Gas Mixer to accurately monitor and deliver homogeneous gas mixtures, and a Micro Gas Analyzer was installed to enable instantaneous and accurate analysis of the gas samples. Filters were added to the process line to remove particles down to 0.003 micron and a purifier was included to reduce impurities prior to mixing.

THE RESULT

The Activity Tester Cabinet has enabled our customer to offer a high-precision, high-performance solution for sulfuric plant operators' chemical delivery challenges, with premier quality and safety that are hallmarks of the AES SEMI-GAS® brand. The solution supports specific conditions for testing and analysis and includes customizable options to meet the customer's needs.

Key Safety Features

The silica bypass manifold's design provided two points of isolation between the hazardous gas and the operator during any maintenance routines and also allowed one silica pack to be cleaned and/or replaced while keeping the system in operation. The process panel for sulfur dioxide featured fully automatic purge capabilities to increase process efficiency and decrease human error, as well as an excess flow switch and pigtail shutoff valves to automatically shutdown the system in the event of an undesirable condition. LED light towers, audible buzzers, and door switches provided heightened system security, status monitoring, and alarm annunciation.



Let AES Apply Innovation to Your Gas Delivery Challenge

Your process requirements are like no other, and your gas handling system should be too. AES' Applied Solutions bring together our robust product offerings, industry-leading services and vertical expertise to solve even the most complex gas delivery and distribution challenges—to benefit customers of all sectors and sizes who have highly specific application requirements. Through Applied Solutions, you can **tap into the innovation necessary to solve your specific gas delivery challenges.**

Tell us about your equipment needs today. Call **610.647.8744** or email **appliedsolutions@appliedenergysystems.com**.

