



Breen-SA Probe
Dew Point Detection
and Measurement



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LIME

Discovering what's possible with calcium



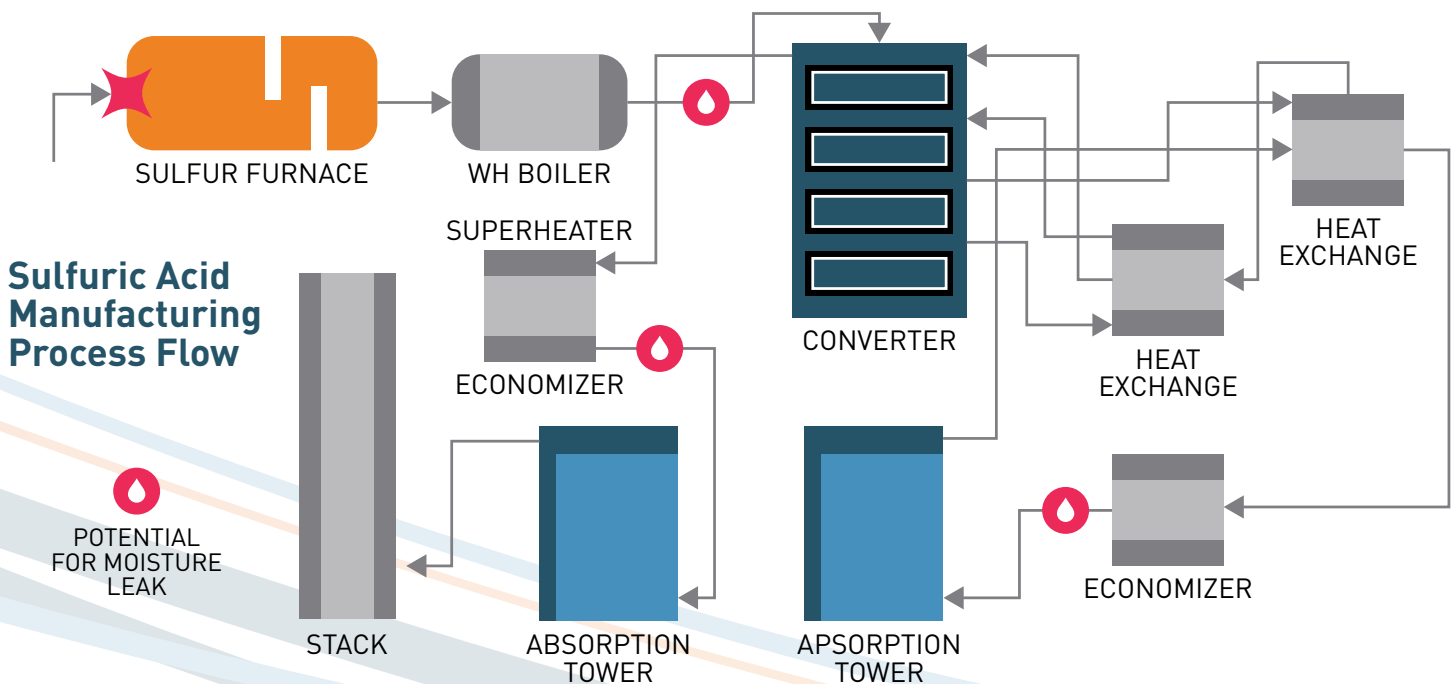
Breen partners with Sulfuric Acid Manufacturing Industry experts to understand their unique application requirements and develops robust solutions to meet their needs. Breen also offers technical consultation and services to complement the utilization of their technology in the field.

The Breen Sulfuric Acid Probe (Breen-SA Probe) was created specifically for the sulfuric acid processes and this challenging environment. It provides a quick indication of process gas moisture leaks and a periodic measurement of sulfuric acid dew point.

Breen-SA Probe¹ Application

In the sulfuric acid production process, the gas laden with SO₃ in the process is kept moisture-free. The only time moisture would be introduced into the gas stream is when there is a process upset. The ingress of moisture will cause a high process gas dew point and is generally indicative of one of the following conditions:

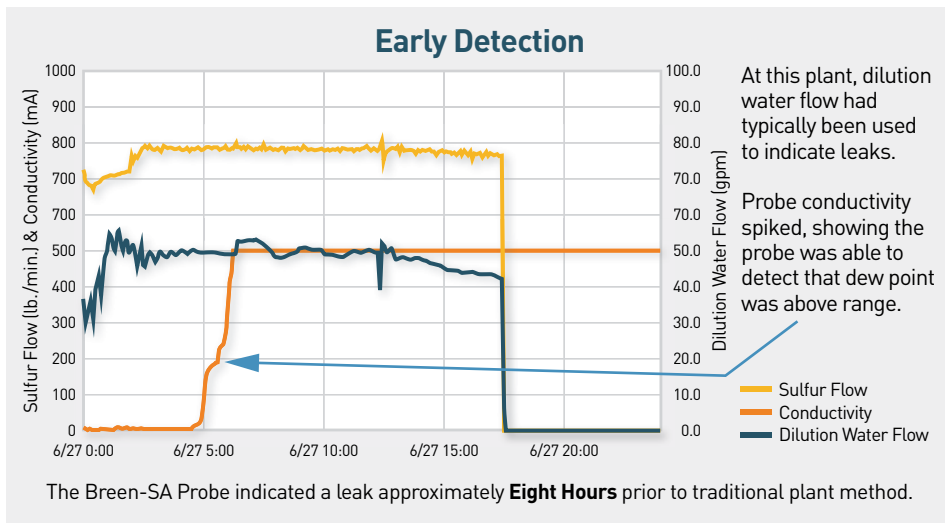
- Drying tower malfunction/performance
- Moisture in feed/fuel
- Waste heat boiler tube leaks
- Economizer tube leaks
- Cleaning system malfunctions



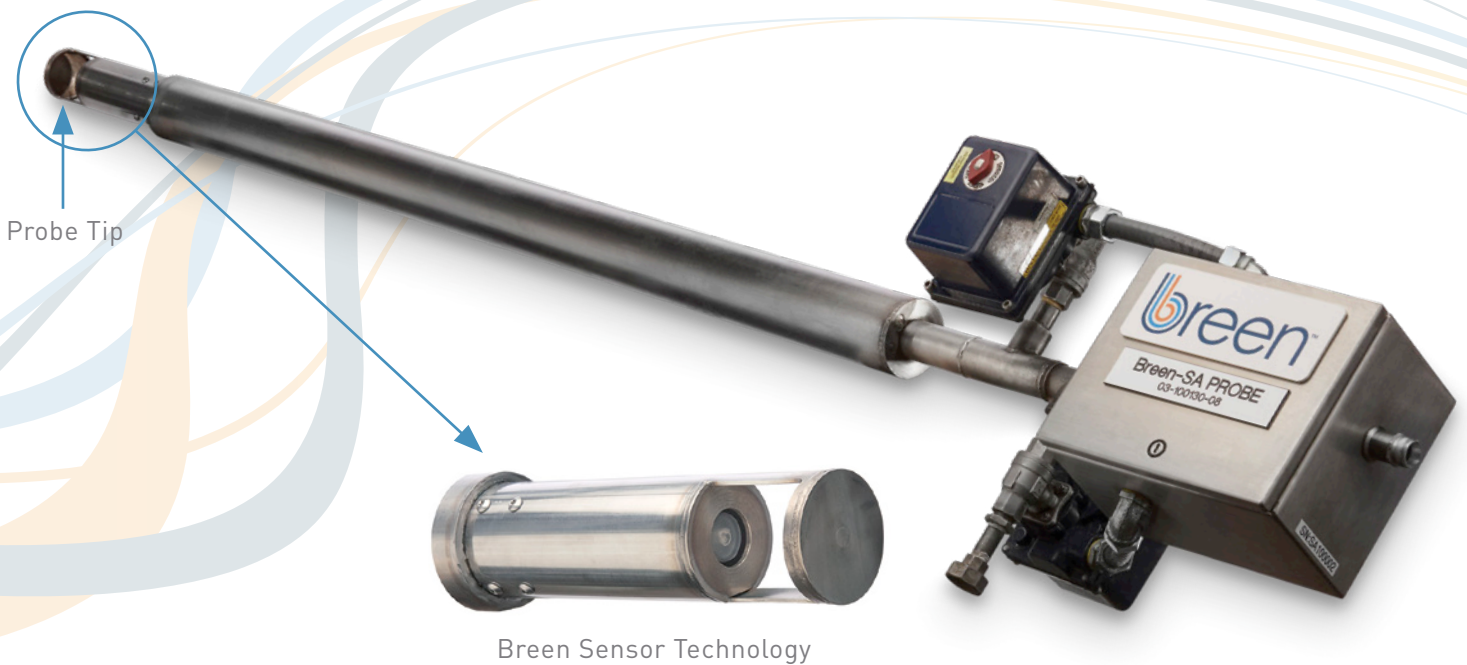
The Breen-SA Probe Solution

Moisture leak detection in the sulfuric acid process is highly desirable to minimize equipment corrosion, process downtime and hydrogen safety hazards. In normal measurement mode, the system will continuously maintain a clean, dry surface, cycling the sensor temperature above the process gas dew point. On demand, or at timed intervals, the system will measure and report the process gas dew point.

When moisture leaks into the process, condensable vapors will deposit on the probe tip, be sensed by a conductivity measurement and alert the plant operators of the potential for a moisture leak.



The Breen-SA Probe is specifically designed for this challenging environment to provide a long-term, maintenance-free early warning for moisture leaks.



Breen-SA Probe Specifications

Measurement Specifications

Dew Point Temperature Range	100° to 700°F (82° to 371°C) [Dependent on process gas temperature]
Accuracy	+/-2.7°F
Conductivity Measurement	0-1000uA

Environmental Specifications

Probe	Process wetted materials 316 SS, Pyrex
Max Process Temperature	900°F (482°C)
Probe Terminations	-20° to 140°F (-29° to 60°C)

Installation Specifications

Insertion Depth	36" (914 mm) +/- 0.75" (19 mm)
Probe Mounting Range	4" 150 lb ANSI Flange, Vertical or Horizontal mounting
Air Requirement	75psi (5.17 Bar) @ 25 SCFM (708 l/min) Clean dry instrument air

Control Cabinet

Ambient Temperature Limits	32° to 122°F (0° to 50°C)
Electrical Requirement	120/240 VAC 50/60Hz, 20 Amp, 300-watt dedicated circuit with fuse or circuit breaker protection hard-wired to EPCC.
Analog Outputs	Four 4-20 mA signals
Modbus	31 data points via Ethernet or Serial (232/485)
Alarm Relays	Pressure Relay: SPDT rated 10A, 120V AC/240V AC Power Relay: PDT rated 10A, 250V AC/DC
Probe Cable (supplied by Breen)	2 twisted pair conductors, 20 ga shielded cable to connect Type R TC, 4/24-volt power wires (2 positive, 2 negative), 1 ground wire, & Probe Current

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Mississippi Lime Company (MLC) is a leading global supplier of high-calcium lime products and technical solutions. With over a century in business, the company has built a reputation on the purity of its products, commitment to research and development, and a tradition of customer satisfaction.



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