



## Protect Millions in Catalyst Value with SeNSE<sup>2</sup>

Speciated Sulfur and Nitrogen Detection at ppb Levels



### Stability and Precision That Safeguard Purity and Profitability

PAC's SeNSE<sup>2</sup> chemiluminescence detector delivers speciated sulfur and nitrogen analysis with unrivaled stability, empowering petrochemical processing plants to safeguard catalysts, optimize yields, and meet stringent purity standards. The SeNSE<sup>2</sup> combines exceptional sensitivity, equimolarity, reliability and drift-free performance to address critical challenges encountered in processes such as the emerging petrochemical feedstocks utilization, polymerization or specialty chemicals productions.

### LINEARITY AND STABILITY

#### Nitric Oxide Analysis in Ethylene · Custom Method by PAC

A dedicated solution for accurate and repeatable determination of nitrogen compounds such as nitric oxide (NO) is absolutely essential to prevent catalyst poisoning in petrochemical operations. PAC's SeNSE<sup>2</sup> nitrogen chemiluminescence detector (NCD) offers ~30 ppb detection limits, free from hydrocarbon interference, with outstanding linearity and stability. With 2.5% RSD over 24 hours, SeNSE<sup>2</sup> protects catalysts and minimizes downtime in high-throughput environments.



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### EQUIMOLARITY

#### Sulfur in Light Liquids & Gases · ASTM D5623

Ziegler-Natta catalysts in polyolefin production are highly vulnerable to sulfur poisoning—even trace amounts in ethylene or propylene streams can halt polymerization and severely degrade overall product quality and consistency. The SeNSE<sup>2</sup> Sulfur Chemiluminescence Detector (SCD) outperforms traditional pulsed flame photometric detectors (PFPD) with ultra-low 10 ppb detection limits, ensuring early identification of critical threats like H<sub>2</sub>S or COS.



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### SELECTIVITY

#### Trace Thiophene in Benzene · ASTM D7011

Benzene, a critical precursor for styrene, phenol, cumene, and other industrial chemicals, is frequently contaminated with thiophene impurities. Even trace amounts can poison ethylbenzene dehydrogenation catalysts or compromise downstream products. The SeNSE<sup>2</sup> SCD isolates thiophene from co-eluting benzene with unrivaled selectivity, achieving 20 ppb detection to ensure purity and extend catalyst life.



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### SELECTIVITY AND SENSITIVITY

#### Trace Carbonyl Sulfide in Propylene · ASTM D5303

Even trace levels of carbonyl sulfide (COS) in propylene streams can poison polymerization catalysts, causing costly downtime. Detecting COS is difficult because it coexists with the propylene matrix, interfering with many detectors at low levels. Standard methods are limited to 0.5–4 ppm, but SeNSE<sup>2</sup> provides superior selectivity and sensitivity, detecting COS down to 30 ppb without baseline disturbance or quenching.



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