

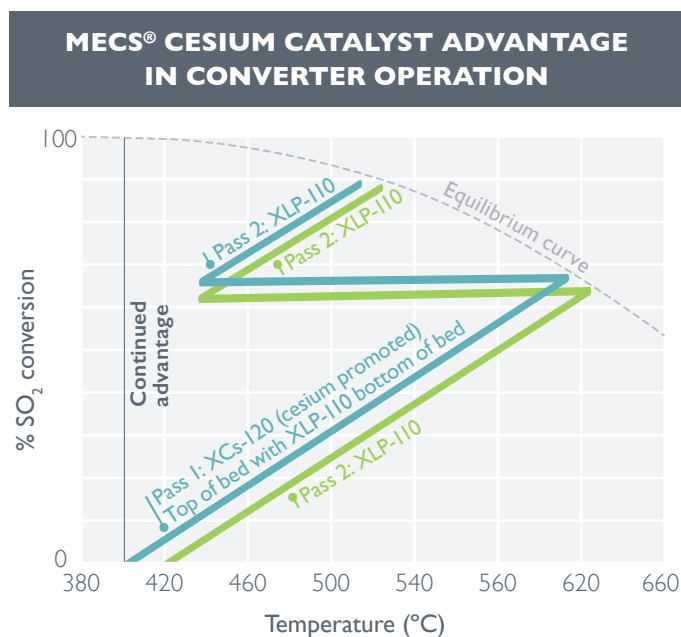
CATALYST FOR SULFURIC ACID CESIUM-PROMOTED

MECS® CESIUM-PROMOTED CATALYSTS		MECS® POTASSIUM-PROMOTED CATALYSTS	
HEXA-LOBED RINGS	RIBBED RINGS	HEXA-LOBED RINGS	RIBBED RINGS
			
GR-Cs	XCs-120 SCX-2000	GR-330 GR-310 Super GEAR®	XLP-110 XLP-310

ADVANTAGES OF CESIUM-PROMOTED MECS® CATALYST

For optimal performance of sulfuric acid plant converters, MECS® cesium-promoted catalysts are a value-added choice. The lower temperature activation of cesium-promoted catalysts results in higher conversion, faster startups and reliable performance with fluctuating inlet conditions. As shown in **FIG. 1** below, a cap of cesium-promoted catalyst allows for higher conversion before the reaction becomes equilibrium limited, which provides a continued advantage across the converter. For high SO₂ operations, cesium catalysts also allow for lower outlet temperatures, which can extend the life of your converter.

FIG. 1



FEATURES AND BENEFITS

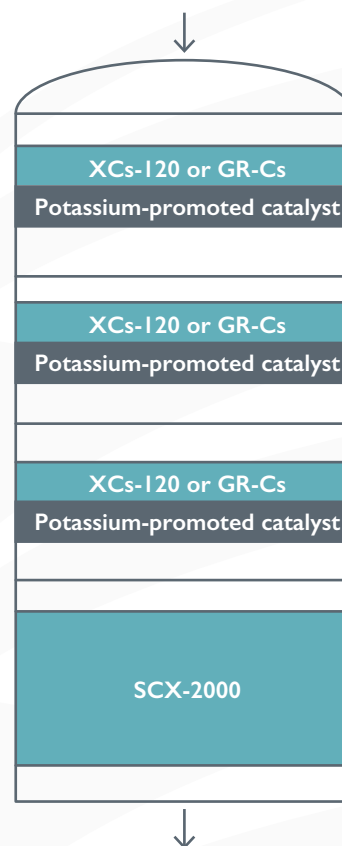
Improved conversion performance:

- Lower sulfuric acid plant stack SO₂ emissions
- High plant production rates from cesium-enhanced formulation

Operational upgrades:

- Low ignition temperature of 320°C (610°F) results in faster start-ups
- Greater operating flexibility for plants with variable process conditions or heat exchanger limitations
- Lowers pass outlet temperatures to extend the life of the converter

FIG. 2 shows the placement options of cesium-promoted catalysts in a typical converter.



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MECS® CESIUM OPTIONS

As seen in **FIG. 3** below, MECS® technologies provides various cesium-promoted catalysts tailored to meet specific performance requirements. Both XCs-120 and GR-Cs are designed for the harsh environment in upper beds, while providing the versatility of a cesium-promoted formulation. The 13 mm hexa-lobed shape of GR-Cs provides optimal dust management, leading to long operating periods and minimum bed pressure drop. XCs-120 minimizes screening losses, while still providing the lower temperature activation of a cesium product. And for ultra-low SO₂ emissions, the SCX-2000 highly active formulation is an ideal choice for long term performance.

FIG. 3

FEATURES	GR-Cs	XCs-120	SCX-2000
Shape characteristic	Hexa-lobed ring	Ribbed ring	Ribbed ring
Normal diameter (mm)	13	12	12
Inlet temperature	as low as 385°C (725°F)		
Features	Superior dust handling & low pressure drop	Low screening loss	Ultra low emissions
Typical application	Pass 1 (can be used in all passes)	Pass 1 (can be used in all passes)	Pass 4 & 5 (can be used in Pass 3)

MECS® CESIUM CATALYST PROVIDES SUPERIOR CONVERSION AND ULTRA-LOW EMISSIONS

The MECS® SCX-2000 catalyst is designed for superior conversion in lower pass converter applications, with or without interpass absorption. SCX-2000 is significantly more active than conventional potassium-promoted vanadium catalysts and is in fact the most active MECS® catalyst available. By taking advantage of the low temperature properties of this catalyst, plant SO₂ emissions can be significantly reduced while maintaining the desired acid production rate. Since the early 2000s, SCX-2000 has shown it can consistently maintain ultra-low emissions (100ppm or less) through multiple campaigns. In addition, the 12mm ribbed ring shape provides the same low pressure drop performance as the standard XLP-110 catalyst.

Our catalyst and process specialists can provide the optimal MECS® catalyst combination for your converter design and sulfuric acid plant operating requirements. Cesium catalyst is a value-added design element that can elevate your sulfuric acid plant to the next level.



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