

CATALYST FOR SULFURIC ACID

GEAR® HEXA-LOBED RINGS



LOWER SO₂ EMISSIONS, INCREASED ACID PRODUCTION

GEAR® (Geometrical optimization – Enhanced surface area – Activity improvement – Reduced pressure drop) is the newest catalyst for sulfuric acid from MECS, Inc. (MECS). The enhanced surface area of GEAR® catalyst increases accessibility of the catalyst active sites, improving the effectiveness of each catalyst ring. An advanced formulation and unique hexa-lobed ring shape combine to elevate the catalyst activity compared to ribbed-ring shaped catalyst. Improved activity of the GEAR® catalyst increases SO₂ to SO₃ conversion. Sulfuric acid plants now have the choice of reducing stack SO₂ emissions, increasing sulfuric acid production, or both.

FEATURES AND BENEFITS

LOWER SO₂ EMISSIONS AND INCREASED ACID PRODUCTION

- Advanced formulation offers higher conversion and/or greater plant capacity
- Catalyst active sites are easily accessed through enhanced surface area

ENERGY SAVINGS

- Lower pressure drop than ribbed rings
- Reduced main compressor power requirement

LONGER PRODUCTION CYCLE

- Improved dust handling
- Slower pressure drop evolution
- Longer time between turnarounds

PROVEN PERFORMANCE

- Continuous service since 2008
- Same durability as MECS® XLP series catalyst
- Low screening losses demonstrated



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CATALYST

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CATALYST FOR SULFURIC ACID GEAR® HEXA-LOBED RINGS

ENERGY SAVINGS

Optimization of the GEAR® catalyst shape results in a lower pressure drop catalyst. This reduced pressure drop results in energy savings for new or existing sulfuric acid plants. With GEAR® catalyst, energy savings are realized at initial start-up and throughout the production campaign. Additionally, in a new plant design, a potentially smaller converter lowers initial capital cost.



PRODUCT HIGHLIGHTS

CATALYST	GR-330	GR-310
APPLICATION	ANY PASS	ANY PASS
SHAPE	HEXA-LOBED RING	HEXA-LOBED RING
NOMINAL DIAMETER	13 MM	12 MM
FORMULATION	ADVANCED	ADVANCED
IGNITION TEMPERATURE RANGE	350-360°C (662-680°F)	350-360°C (662-680°F)
% LOWER PRESSURE DROP COMPARED TO XLP	UP TO 25%	UP TO 10%
DUST HANDLING CAPABILITY COMPARED TO RIBBED RING CATALYST	SUPERIOR	BETTER



EXTENDED OPERATING TIME

Innovative hexa-lobed ring shape of the GEAR® catalyst improves dust handling. Given the same dust loading, pressure drop rises more slowly over time with GEAR® catalyst compared to ribbed ring catalyst. Since main compressor capacity can limit operating time between catalyst screenings, slower evolution of pressure drop translates into more acid production and longer time between required turnarounds.

CUSTOM DIAGNOSTIC DESIGNS

The GEAR® catalyst affords new design options, each with unique benefits. For the lowest pressure drop and maximum extension in the production cycle, GR-330 will be used throughout the converter. A design with only GR-310 provides the highest conversion performance as well as longer production cycle. A combination of GR-330 and GR-310 will result in significantly improved conversion, reduced pressure drop, and extended production cycle. GEAR® catalyst can be used in ALL converter passes.



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