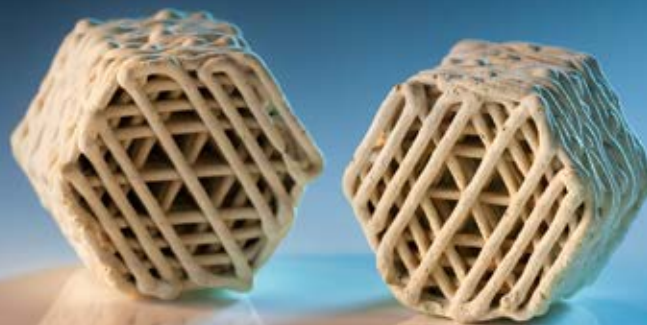


# BASF X3D™ Technology

Sulfuric Acid Catalysts based on 3D printing

**BASF**

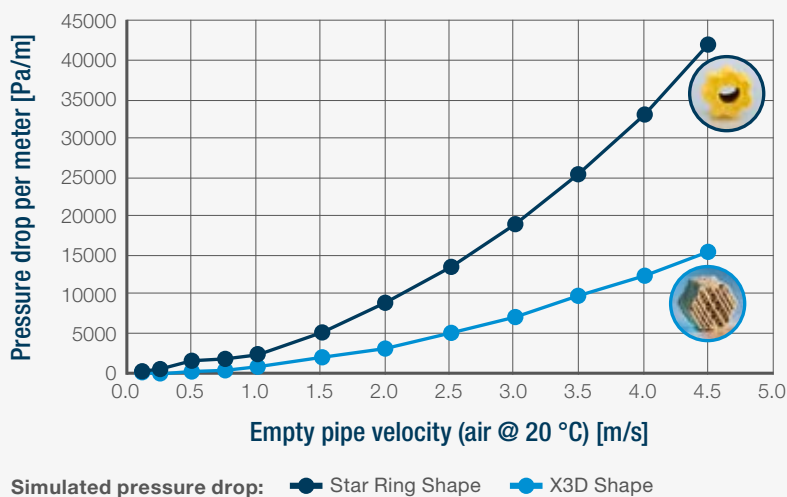
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The next step change in sulfuric acid production: **Higher surface area, lower packing density and significantly lower pressure drop.**

Physical property	Star Ring	Quattro	X3D
Packing Density [kg/m <sup>3</sup> ]	450	450	420
Rel. Geometric Surface Area [%]	100	130	150
Pressure Drop Re=100 [%]	100	105 ±5	35 ±10

**66% Lower pressure drop** when compared to Star Ring shape.



**BASF X3D™ Technology** enables a significant contribution for emission reduction & energy cost savings

**Example:** BASF Sulfonation plant

Measure	Outcome	Savings/Month
Increased conversion by 1.3 %	Decreased NaOH consumption due to higher conversion	Min. 20 %
Decreased pressure drop by 77 %	Decreased electricity consumption due to lower pressure drop	6 %



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## About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The division offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

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