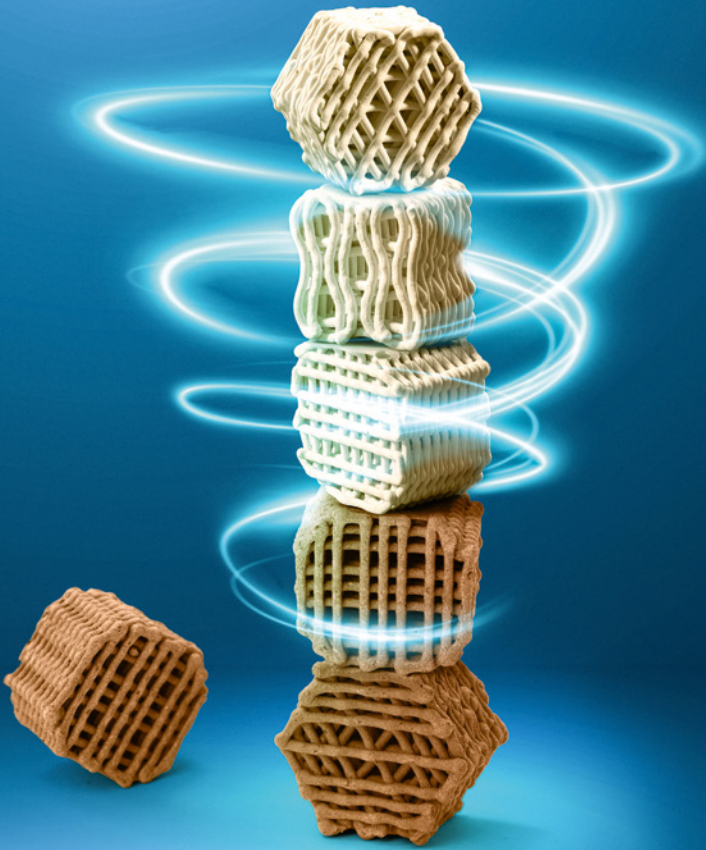


 **BASF**

We create chemistry



BASF's X3D[®] Technology

Shaping tomorrow's catalysts
with today's technology

X3D[®] is BASF's groundbreaking additive manufacturing technology for catalyst production. Utilizing advanced 3D printing techniques, X3D[®] creates catalysts with optimized shapes that maximize performance, improve efficiency, and reduce energy consumption. This innovative technology enables tailor-made catalyst designs for various industrial applications.

Key Benefits:

- **Higher Efficiency:** Enhanced surface area improves reaction efficiency and product quality.
- **Lower Energy Consumption:** Open-structured catalysts minimize pressure drop, leading to energy savings during operation.
- **Seamless Integration:** Easy drop-in solution that requires minimal adjustments to existing processes.



Proven Technology with Real-World Impact

BASF has successfully deployed X3D[®] catalysts in commercial applications, delivering measurable benefits:

O4-115 X3D[®]: Sulfonation plant

- Blower energy saving: 106 MW/a or 18k€/a equaling 383 tons CO₂e
- Higher yield: <1%, equals <1 MTPD or 25k€/a
- Caustic soda saving: 20.5 kg/h or 58k€/a or 50%

O3-85 X3D[®]: N₂O abatement in nitric acid plant

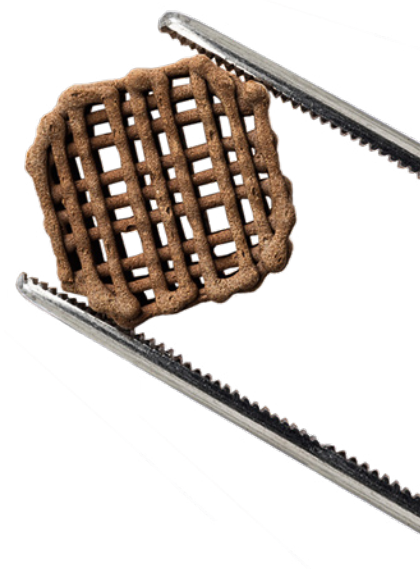
- Blower energy savings: up to 50%
- CO₂e emission savings: >€3m/a (compared w/o abatement)
- 20% increased reduction in N₂O emissions compared to our standard extrudate

Scaling Up for the Future

To meet growing market demand, BASF is investing in additional X3D[®] production capacity in Ludwigshafen with an industrial-scale plant set to be operational by 2026. This expansion aligns with BASF's commitment to sustainability and supports industries in reducing their carbon footprint.

Why Choose X3D[®]?

With its ability to produce customized, high-performance catalysts, X3D[®] is shaping the future of the chemical industry. Companies adopting this technology can achieve operational excellence, cost savings, and environmental benefits while staying ahead in a competitive landscape.



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