

News Release

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BASF introduces X3D™, a revolutionary catalyst shaping technology for optimized catalyst performance

- **New X3D™ technology to produce catalysts with optimal shape to achieve best performance and efficiency while reducing energy consumption**
- **Capacity to supply commercial quantities**
- **Technology can be applied to a wide variety of existing catalytic materials**

BASF introduces the novel X3D™ technology, a new additive manufacturing technology for catalysts based on 3D printing. Catalysts produced with this technology feature an open structure, resulting in a reduction of the pressure drop across the reactor and a high surface area, significantly improving the catalysts' performance. BASF has capabilities to supply commercial quantities.

The technology offers a greater freedom of catalyst design compared to conventional production technologies. It brings catalysts' performance to the next level and helps to customize catalysts to customers' specific conditions and needs by designing infill pattern, fiber diameter and orientation. Customers can benefit from an increased reactor output, higher product quality and lower energy consumption. The novel catalysts are mechanically robust and proven in commercial plant operation externally and for several years in BASF.

BASF can apply the technology to a wide variety of existing catalytic materials,

including base or precious metal catalysts as well as carrier materials. BASF's Sulfuric Acid catalysts O4-111 X3D and O4-115 X3D are the first catalysts produced with the new technology and are used in industrial plants.

"With this technology, we are able to provide catalysts that are tailored to our customers' needs to help significantly boost their plant performance while reducing energy consumption and increasing sustainability at the customer level", said Detlef Ruff, Senior Vice President, Process Catalysts at BASF. "BASF's technical service team will work with customers to identify the best catalytic technology for their individual projects," said Chris Wai, Vice President, Global Chemical Market Catalysts at BASF.

About BASF's Catalysts Division

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group 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. Further information on BASF's Catalysts division is available on the Internet at www.catalysts.basf.com.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 111.000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €78.6 billion in 2021. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at www.basf.com.