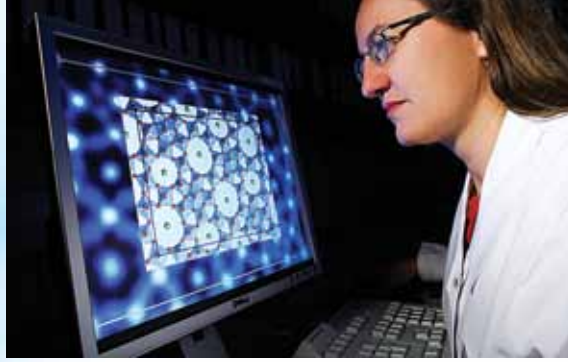




**When the right reaction matters ...**  
**Trust BASF Custom Catalysts**

 **BASF**  
The Chemical Company



## BASF – The Global Leader in Catalysis

As the Chemical Company, BASF leverages core catalyst and chemical technologies with the creative imagination of over 650 catalyst research scientists to create practical solutions that drive new levels of customer performance and achievement. Competencies in material science and surface chemistry and over 100 years of catalyst manufacturing experience result in unique materials with customized functionality to meet strategic business objectives.

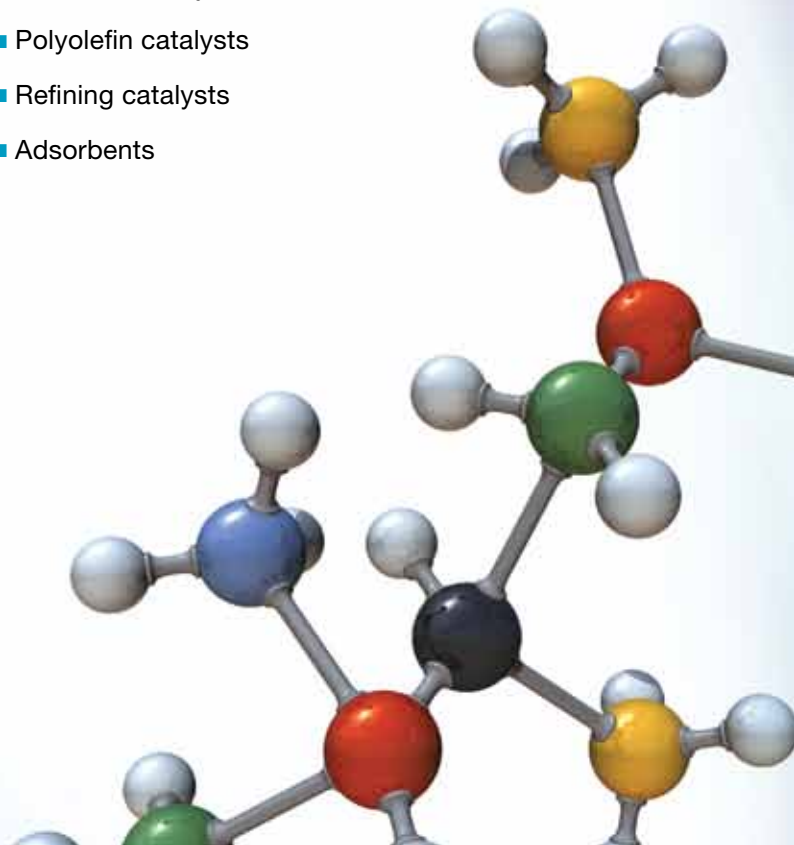
- Engineered materials
- Specialized chemical formulations
- Optimized process



## Trust BASF Custom Catalysts

As the global leader in catalysis, BASF offers a broad range of manufacturing assets combined with expertise critical to the success of custom catalyst development. Collaborating with our customers allows them to develop and commercialize their catalyst technology. From idea creation through to supply and manufacturing, BASF provides the entire value chain. Our proven business model was created with the experience earned from more than 50 years of custom manufacturing of:

- Chemical catalysts
- Polyolefin catalysts
- Refining catalysts
- Adsorbents



## From Patent to Product – Adding Value to Every Process Step

BASF offers knowledge and expertise in areas from precipitation through catalyst activation that enables custom catalyst development and manufacturing to meet individual business objectives.

Precipitation

Crystallization

Filtration

Drying

Calcination

Forming

Impregnation

Activation



## Confidentiality and Intellectual Property (IP) Protection

We recognize that our customers' Intellectual Property (IP) is important. Therefore, we have established a successful protocol that includes:

- Establishment of Legal Agreements for IP Protection
- Internal "Firewall" Protection
- Limitation of Information Dissemination on a "Need-to-Know" Basis
- Project Teams Chosen to Avoid Conflicts of Interest



## Turn Your Catalyst into Commercial Reality

BASF is well-positioned to support custom catalyst development and commercialization through:

- In-depth knowledge and expertise in industrial catalysts and processes, e.g. base and precious metal catalyst development, expertise in zeolites and all catalyst shapes and sizes
- Breadth of global assets, both quantity and type
- Ability to deploy BASF global resources
- More than 50 years of proven success with full Intellectual Property (IP) protection



## How Can BASF Custom Manufacturing Help You?

BASF's manufacturing experience is invaluable at each step of development and manufacturing, such as choosing the right equipment for the intended applications. We know how to balance parameters such as the cost of producing various materials with the performance benefits each material offers. In addition, our group has superior knowledge of various materials' temperature limits both in processing and use.

- Scaling up the product/material found most satisfactory in the lab or pilot plant trials
- Monitoring, interpreting and assessing pilot plant/commercial scale process data in order to optimize product performance for a specific application
- Optimizing the final formulation and/or process selection based on both technical and economic considerations
- Understanding the product manufacturing and associated costs



## What is a BASF Custom Catalyst?

A BASF custom catalyst is a catalyst developed or co-developed by a BASF customer with full confidentiality and intellectual property (IP) protection. BASF provides a vehicle for you to maintain control of your technology without having to produce catalysts. Varying business models provide flexibility to suit your specific needs.

Custom catalysts can be developed for chemical process catalysts, industrial catalysts, polyolefin catalysts (polymer catalysts) and refining catalysts, as well as adsorbents.

## Why Outsource Your Custom Catalyst Manufacturing to BASF

Catalyst manufacturing is what we do. We offer manufacturing capabilities to formulate your custom catalysts within our global network of production plants, research units and site communities around the world.

BASF is committed to international standards and sustainable development. We operate in a dialog of mutual respect and integrity.

- Realize cost efficiencies through capital cost avoidance and manufacturing cost reductions
- Achieve speed-to-market while maintaining high quality and flexibility
- Focus on your core competencies and leverage BASF's catalyst expertise



## Surface and Material Science Competencies

BASF's surface and material science experts utilize engineered materials and specialized chemical formulations to

- Create customized functionalities
- Enhance yield, selectivity and lifetime
- Enable environmental compliance

## Types of Heterogeneous Catalysts



## About Us

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.

### **BASF - The Chemical Company**

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