

# Custom Manufacturing Services

Delivering superior toll processing capabilities with innovative solutions

## Robust Services

BASF maintains a wide range of materials handling and processing equipment to meet both our own manufacturing requirements and the needs of a diverse group of toll processing customers.

Our customers depend upon BASF to deliver a variety of bulk solids handling and processing services on time and to specification. BASF's capability to provide these services is enhanced by:

- **Experience**

Broad knowledge base in the toll processing operations listed below.

- **Flexibility**

Wide variety of installed equipment with modular arrangement for specific customer requirements.

- **Certification**

Plant-wide quality program certified to the ISO 9001: 2000 and ISO 14001 standards.

## Proven Expertise

BASF's capabilities continue to expand to meet our own growing needs, along with the needs of our customers. Capital investment in new equipment will be considered, if justified by your project, or in combination with our own business needs.

Working in unison with our customers, BASF's custom manufacturing group has pioneered ground-breaking alumina technologies that include:

- Addressing limitations in catalysts activity
- Manufacturing products that combine high porosity with high surface area
- Improving overall physical properties of formed substrates
- Increasing product life through increased hydrothermal stability
- Cultivating special promoters that enhance surface acidity and basicity functions, thus enhancing product selectivity.



BASF custom manufacturing works in collaboration with its customers, and together, accelerates the commercialization of their products and its success. We want to help our customers be more successful by meeting their existing and future business requirements. We recognize that our customers are often competitors to BASF, and we have established solid "firewalls" to protect the Intellectual Property (IP) of our customers from other BASF divisions.

## How Can BASF Custom Manufacturing Help You?

- Choosing commercial products most suitable for the intended applications. We know how to balance parameters such as the cost of forming various materials with the performance benefits each material offers. In addition, our group has good 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 process selection based on both technical and economic considerations. Expertise in product manufacturing and understand the associated costs.
- Developing new or modified oxide-based materials and testing these products.

## Overcoming Capacity Challenges

Our unique materials processing, manufacturing and quality control experience can assist our customers in overcoming their capacity limitations and/or special project requirements. Most of our equipment is located in our Port Allen facilities shown below.



Figure 1: Adsorbents plant in Port Allen, Louisiana, USA

## Adsorbents plant in Port Allen, LA

- Two distinct businesses: activated alumina and custom manufacturing
- Manufacturing of catalyst supports, adsorbents and Claus catalysts
- Processing pseudoboehmites
- Tub ballforming technology — lower density, higher pore volume
- Modular semi-continuous process
- 5 miles from Port of Baton Rouge
- 75 miles from Port of New Orleans
- On-site laboratory
- Extensive Pilot Plant
- ISO 9002/ISO 14001

## Capabilities

### ▪ Size Reduction

- Crushers (several types and sizes)
- Hammer mills (several types and sizes)
- Jet mills
- Ball mills
- Mixers/Mullers

### ▪ Size Separation

- Vibratory screens – diameters to 48" with particle size range from 1" to 200 mesh

### ▪ Heat Treating

- Fluid bed calciners (direct) – temperatures to 2000°F
- Belt dryers – temperatures to 800°F
- Rotary kilns (indirect) – temperatures to 1800°F
  - NOx abatement
  - Updated Burner Controls
- Static (direct fired) – temperatures to 2200°F

## ▪ Forming

- Agglomerater – spherical, ¼" to 100 mesh
- Pelletizers – spheres, ½" to 20 mesh
- Extruders – cylinders, custom shapes
- Spray Drying – 500 lbs/hr water evaporation capacity

## ▪ Laboratory & Quality Control

- Moisture – free moisture, LOI and static sorption
- Particle size – screens, laser-based particle size analyzer
- Analytical – TGA, spectrophotometry, pH, titrations, etc.
- Physical – crush strength, abrasion loss/attrition
- Surface area – BET nitrogen adsorption
- Porosimetry – 60,000 psi Hg intrusion

## Available Packaging

- Paper bags
- Steel drums
- Super sacks
- Custom packaging

## Custom Manufacturing Capabilites

### ▪ Substrate Forming

- Tablet
- Spheres
- Extrusion

### ▪ Substrate Impregnation

- Dip Tank
- Mixer

### ▪ Spray Drying – 500 lbs/hr

### ▪ Particle Size Adjustments

- Milling
- Screening
- Air classification



Figure 2: BASF offers a wide variety of custom manufacturing capabilities.

## 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 catalyst and adsorbent solutions that drive customer success.

### **BASF - We create Chemistry**

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