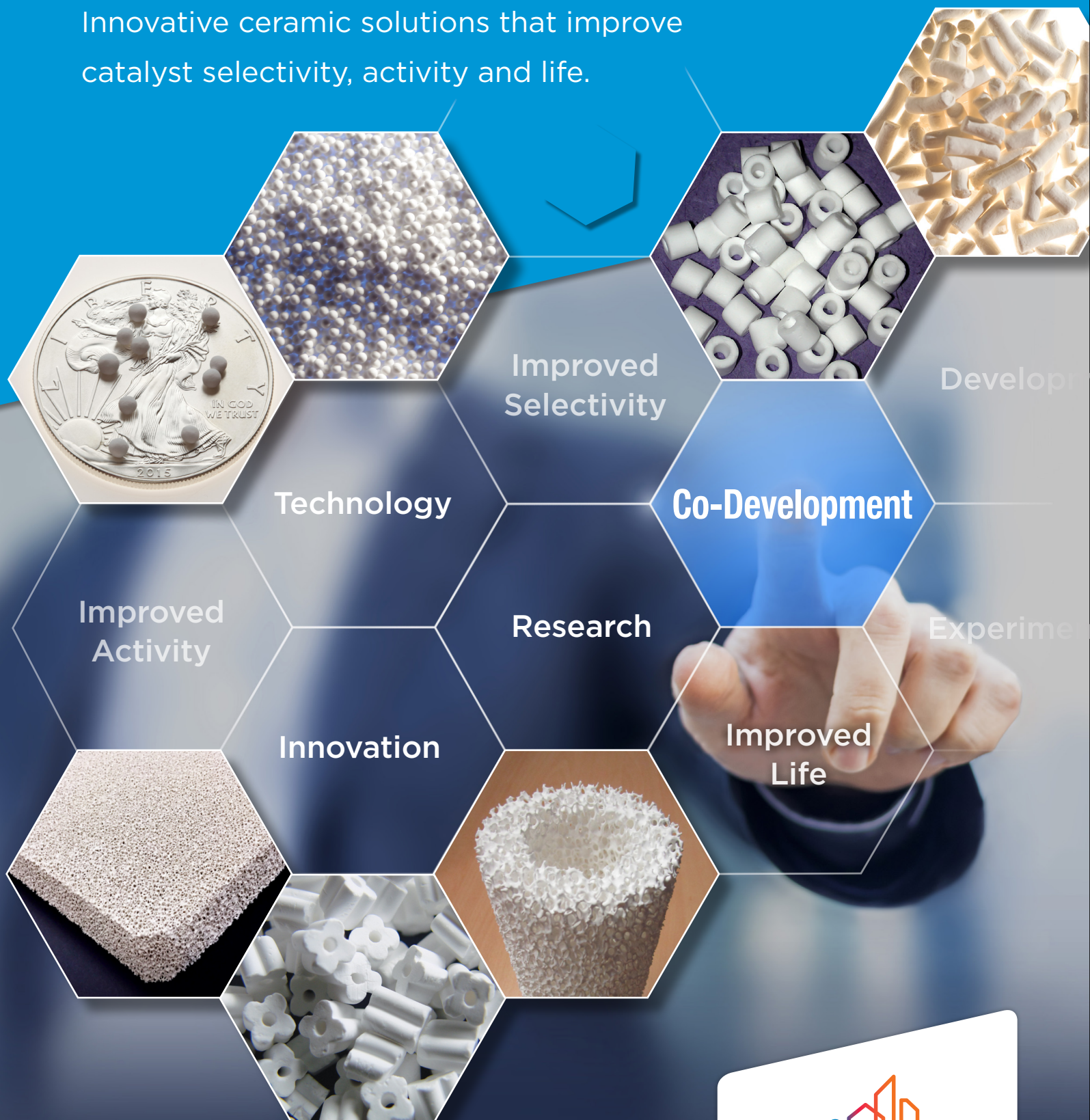


# Catalytic Products

Innovative ceramic solutions that improve catalyst selectivity, activity and life.



NORPRO

  
SAINT-GOBAIN

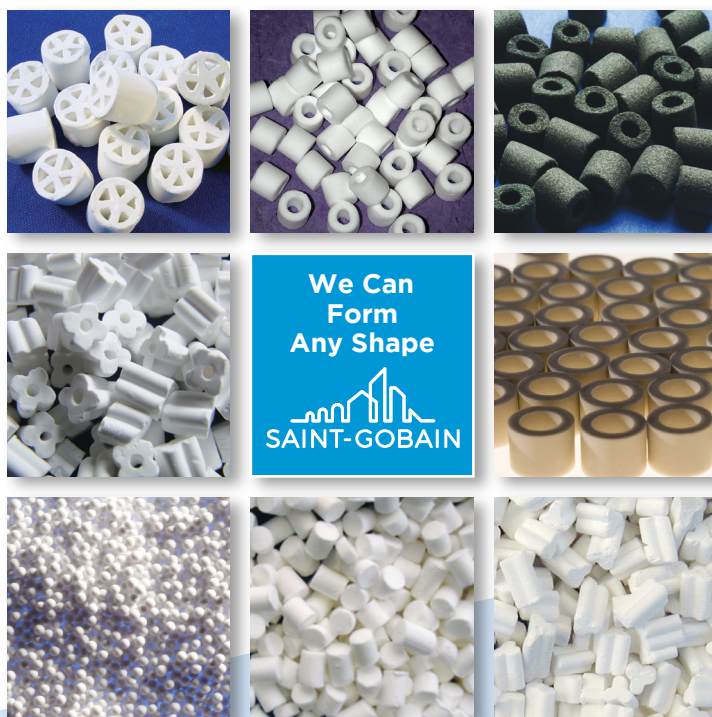
Saint-Gobain NorPro's understanding of raw materials and their effect on finished properties is unparalleled in the industry. For over 60 years we have developed and commercialized hundreds of carriers in a variety of materials for countless applications.

### Our Process:

Our unique co-development process is what has allowed Saint-Gobain NorPro to become the world's leading supplier of merchant catalyst carriers. We've partnered with some of the largest oil and petrochemical companies globally to custom engineer the physical and chemical properties of a variety of materials and shapes to create the optimal carrier for each customer's needs. These proprietary carriers, along with our market-leading support media, help our customers to optimize their catalyst performance and increase their ROI.



New energy & chemical routes require new materials and options for process developers. Accu® spheres and ceramic foams are two new materials with unique properties found nowhere else.



### Accu® Spheres:

For some applications including chemical, petrochemical, refining and biofuels, Saint-Gobain NorPro's Accu® sphere carriers may be the ideal solution. Accu® spheres are designed to optimize and balance pressure drop and external surface area, while porosity and internal surface areas are tailored to suit a specific catalyst and chemical reaction.

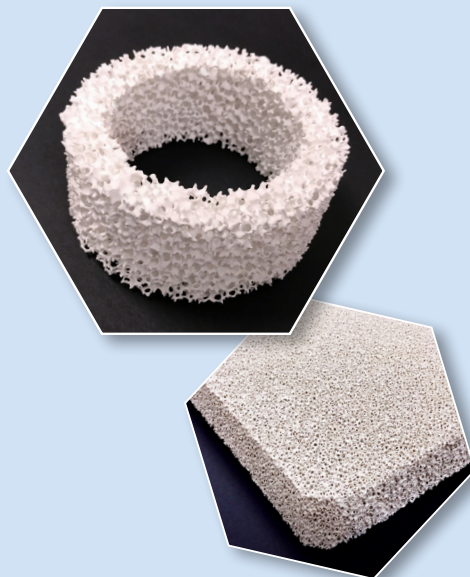
These micro-sized catalyst support spheres meet the small diameter requirements for catalytic systems with their 0.3 mm to 4 mm size range. This range provides high-geometric surface area, uniform packing and even flow distribution for use in slurry or moving bed reactors, especially where coking occurs and constant catalyst regeneration is required.

Saint-Gobain NorPro's manufacturing assures tight adherence to specifications and high-level quality control. Accu® spheres can be produced in a variety of materials including alumina, silica, titania, zirconia and mixed oxides.

### Ceramic Foams:

Ceramic foam materials are gaining acceptance in many chemical and environmental applications where high geometric surface area and low pressure drop is required.

Alumina, cordierite and other materials are available in various shapes and cell sizes to match your application.



### Shaping:

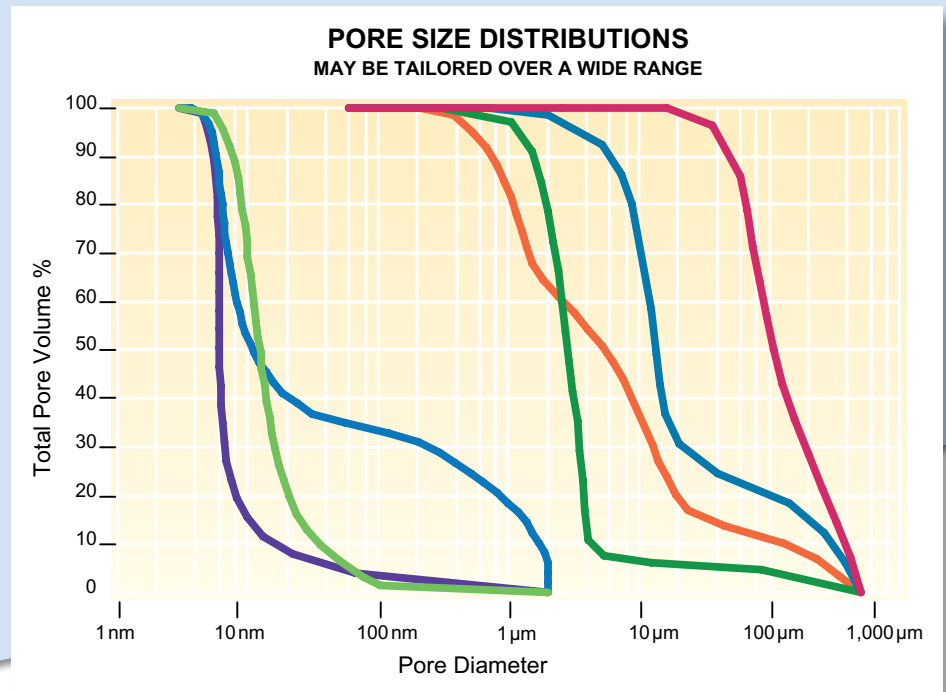
Low pressure drop shapes are available and we can work together to optimize the particle size, void fraction, strength and pressure drop.

Extrudates, typically 1-4 mm in diameter, are still used in many applications, but spheres and rings (hollow cylinders) are also becoming more popular. As with refining applications, extrudates with cloverleaf cross sections, known as trilobes or quadrilobes, are critical to incorporating maximum amounts of active catalyst into a reactor.

More complex shapes, often with fluted exteriors and holes or channels in the body, allow enhanced geometrical surface area which increases access to the catalytic sites for the reactants.

## Tailored Porosity:

Catalytic surface utilization is optimized with the tailoring of the pore size distribution — shifting toward the low or high ends or compacting, where applicable, around a required pore size diameter. The diagram to the right indicates the wide range of pore sizes that may be incorporated into NorPro® carriers. Note the ability to make materials with bimodal and trimodal pore size distributions that allow the carrier to be tailored to the exact requirements of a particular reaction.



Saint-Gobain NorPro is a Leader in Support Media for Refineries

## Catalyst Hold Down Bed Support Media

**MacroTrap® XPore 80** media is designed to alleviate pressure drop in beds of catalysts and absorbents, helping to prolong the life cycle of your catalyst operation.

**Pentarings** are also useful for lowering pressure drop and holding down catalyst in the catalyst bed.

## Catalyst Support Media:

**Denstone®**, the world's leading range of ceramic bed support media, is available in a variety of options, including Denstone® deltaP®, the industry's only shaped support media and Denstone® 99, a high-alumina option perfect for harsh environments.



## ABOUT US:

Saint-Gobain NorPro is part of the Saint-Gobain Corporation's High Performance Solutions business unit. Saint-Gobain is one of the world's leading industrial corporations. Saint-Gobain is present in 68 countries with more than 180,000 employees. Saint-Gobain designs, manufactures and distributes materials and solutions which are key ingredients in the wellbeing of each of us and the future of all.

To learn more visit:

[www.norpro.saint-gobain.com](http://www.norpro.saint-gobain.com)

<https://www.linkedin.com/company/saint-gobain-norpro>

The information herein does not constitute a guarantee or warranty. Saint-Gobain NorPro's warranty is set forth in its standard terms and conditions which govern sales of Saint-Gobain NorPro products. The standard terms are set forth in Saint-Gobain NorPro quotations and acknowledgments and are also available upon request.

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