

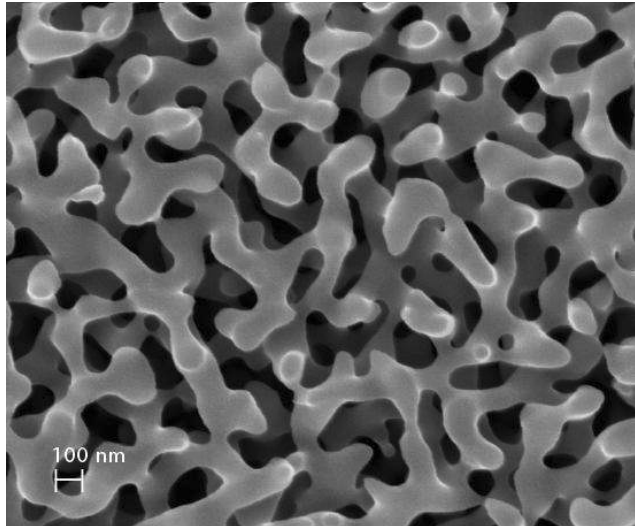
Category: Materials, Coatings & Processes

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CoralPor® high-quality porous glass

CoralPor® Nano- and Macro-Porous glasses have rigid amorphous microstructures that offer outstanding properties, including robust mechanical, thermal, and chemical resistance. The capability to tailor pore structures in terms of size and volume combined with easy surface functionalization enables a broad variety of applications.

Under a scanning electron microscope, CoralPor® porous glasses resemble the structure of their name-sake, coral skeletons. At high magnification, countless pores and channels are revealed. In comparison to other porous materials, the key advantages of porous glasses are found in their high chemical, thermal, and mechanical resistance that give them an extremely rigid and incompressible structure. The technology owner offers nano-porous and macro-porous glasses that have fundamentally different properties, production processes, and applications. What they both have in common is an open porosity that is created through tightly controlled thermal and chemical treatment.



CoralPor® is designed for use in harsh aerospace conditions and is critical in bringing vehicles back safely to Earth. The glass powder is used as a key component in the thermal protection system of re-entry and hypersonic vehicles because it can withstand extreme temperatures. It can be advantageously employed on the acreage of a vehicle, where a thermally resilient material is required. Also, it contributes significantly to weight reduction due to its low density. CoralPor® is a porous material with a rigid, amorphous microstructure that offers robust mechanical, thermal, and chemical resistance.

Your Advantages

- Excellent absorption and separation capabilities due to very large internal surface area and narrow pore size distribution
- Enabling stable results and efficiency due to ultra-robust, long-lasting material. Properties include:
- Low coefficient of thermal expansion
- High thermal stability
- High chemical resistance against a large variety of different media
- Available as a powder or monoliths in various shapes and sizes

Innovative Aspects:

Porous glasses have a number of unique properties that make them an intriguing alternative to organic polymers. Unlike porous polymers, the porosity of porous glass can be tightly controlled, enabling the fulfillment of increased requirements in a broad variety of applications.

- **Durably robust**
The inorganic nature of glass provides porous glasses with high mechanical, thermal, and chemical resistance, making them a more robust option in comparison to inorganic polymer solutions.
- **Tight control over porosity**
The structure can be modeled over a broad scale to have a defined pore size, pore volume, and pore size/diameter distribution.
- **Variety of shapes and formats**
CoralPor® Nano-Porous glasses are offered as powders or larger monolithic pieces in rod, plate, and pipe formats. CoralPor® Macro-Porous glasses are available as granulates and monolithic parts.
- **Adaptable material**
In addition to porosity and shape, further parameters of Macro-Porous glasses that can be influenced through manufacturing and coating processes include glass composition, density, refractive index, CTE, and color.

Application Areas:

The unique properties of porous glass make it one of the most extensively researched amorphous solids. Application possibilities include its use as a biotechnological substrate, a filter/membrane material, a highly efficient desiccant, and a carrier for liquids.

Further applications in the fields of:

- As a substrate in synthesis processes e.g. for enzymes
- Thin layer chromatography
- Ultra- and microfiltration

