

## Plasma functionalized Specialty Glasses

**Novel Specialty Glasses offer an enormous potential regarding new applications of glasses e.g. for sensors and optical fibers. In this regard increasing requirements on the performance demand a continuously material innovation. However, the restricted availability of customized and cost-efficient base materials limit the market dynamics.**

Pades offers technological solutions for spheroidization of high purity synthetic and natural silica particles in plasma reactors and their processing to power stable and radiation resistant high-performance glasses, etch – and transmission optimized glasses for the semiconductor industry, optical waveguides for high power fibres or for high temperature stable silica materials for the partial substitution of SiC.

We have developed technologies, which provide functionalized particles using SiO<sub>2</sub> nano-particles. These are highly pure side-products of the optical

glass fiber industry, which are only marginally used in high quality applications yet.

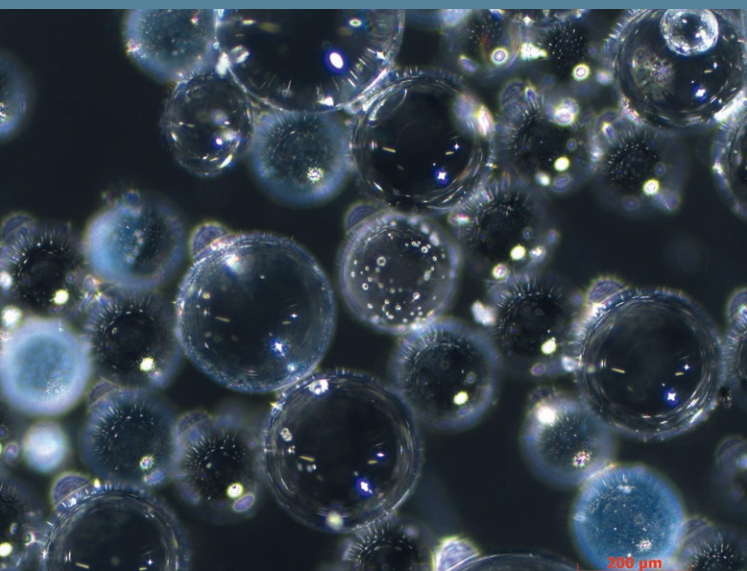
For the first time of our knowledge we perform an adequate usage of highly pure secondary SiO<sub>2</sub> nanoparticles by a plasma enhanced functionalization for novel glasses and ceramics.

Furthermore – with our high temperature gas phase doping – we are able to prepare exactly functionalized glass powders e.g. for high thermal and radiative loaded applications or for efficient energy transportation.

Even more, with our high temperature spheroidization – based on atmospheric plasma – we offer the ability to fabricate spheroidal particles. In subsequent technological steps they can be processed e.g. to high – performance optical waveguides.

### Our offer:

- Supply of specific plasma enhanced technologies for the spheroidization of SiO<sub>2</sub>-particles
- Highly pure spheroidal SiO<sub>2</sub>-particles, as required also doped for special applications
- Innovative technology and know-how for processing of glass powders for highly pure and special adapted silica glasses





## pades | project partner

### Innovative Alliance Specialty Glasses

**The following competence partners offer novel special glasses for high performance applications and the solution of availability of base materials for special glasses by providing unique functionalization and processing technologies:**

**Maicom Quarz GmbH** is an expert engineering firm that specializes in Technology developments for the processing and modification of ultra-clean materials and in design and modification of individual equipment and complete turn-key production lines for microelectronic processes. Maicom Quarz develops customer specific solutions and distributes industry-ready technologies including all necessary equipment. The development segment »Materials« is based on a unique patented procedure and equipment for high-temperature-ICP (Inductively Coupled Plasma).

**Institut für Photonische Technologien e.V.** performs fundamental research on photonic methods and systems of the highest sensitivity, efficiency, and resolution. In accordance with its mission, »Photonics for life – from ideas to instruments«, scientists at IPHT develop customized solutions to issues in life and environmental sciences and medicine. Three research fields – biophotonics, fiber optics and photonic detection – are in the focus of IPHT's research and development.

**Heraeus Quarzglas GmbH & Co. KG** is the worldwide largest manufacturer of synthetic fused silica for applications such as microlithography and telecommunications. All common manufacturing and processing methods are employed and special proprietary technologies complete our spectrum of capabilities. Heraeus develops, produces and supplies tailor-made solutions from base material to complex system components from one source.



Learn about our services and secure a reliable supply source for materials exactly tailored to your application. Gain a competitive advantage through extraordinary functionality.

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