

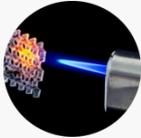
## Why fused silica glass?



High Transparency



Chemical Resistance



Thermal Resistance



Pleasant Haptics



Long Lifetime

## The Glassomer® Technology

Liquids



Solids



Pastes



for making fused silica glass by:

- cutting and carving
- soft lithography
- greyscale lithography
- lathing, milling, drilling
- laser ablation
- hot embossing
- thermal nanoimprinting
- roll-to-roll replication
- 3D printing

## Start creating with glass!



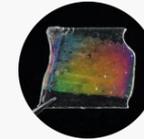
Microfluidics



3D Prints



Microstructures



Nanostructures



Optics



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# Glassomer

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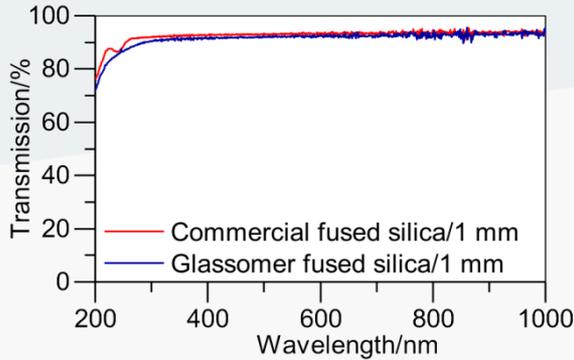


Liquid Formulation Green part Brown part Glass

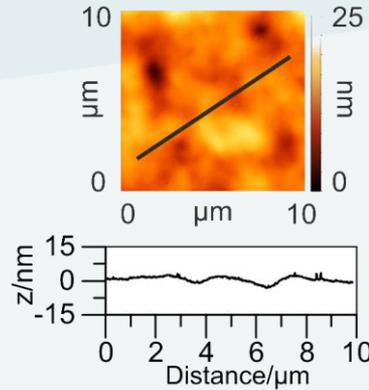
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# Glassomer® Fused Silica

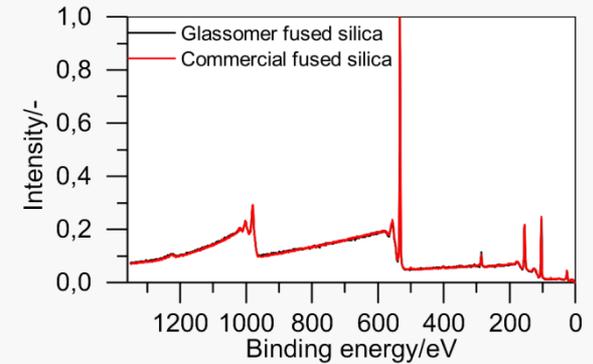
## High Transparency



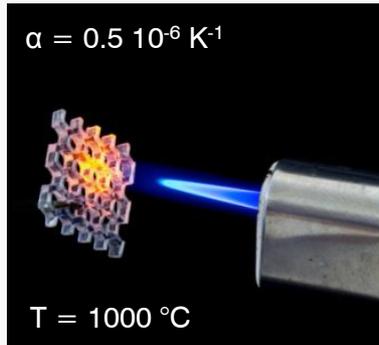
## Low Surface Roughness



## X-Ray Photoelectron Spectroscopy



## Thermal Resistance



## Surface Properties

$$\gamma = 60.4 \pm 0.14 \text{ Jm}^{-2} \quad \Theta_{\text{H}_2\text{O}} \sim 30^\circ$$



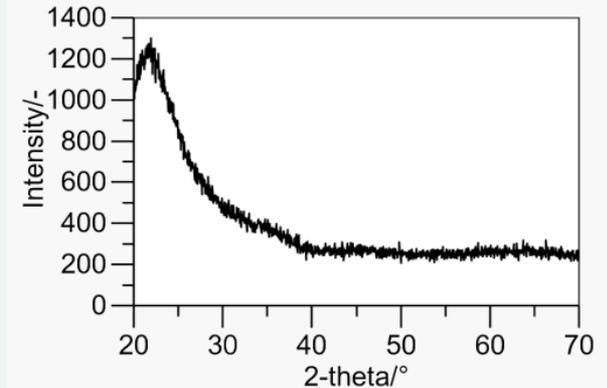
commercial fused silica

$$\gamma = 59.4 \pm 0.52 \text{ Jm}^{-2} \quad \Theta_{\text{H}_2\text{O}} \sim 30^\circ$$



Glassomer® fused silica

## X-Ray Diffraction



## Hardness (Vickers)

Glassomer® fused silica: 980 HV  
Commercial fused silica: 800 HV

## Bending strength

Glassomer® fused silica: 115 MPa  
Commercial fused silica: 100 MPa

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Glassomer GmbH

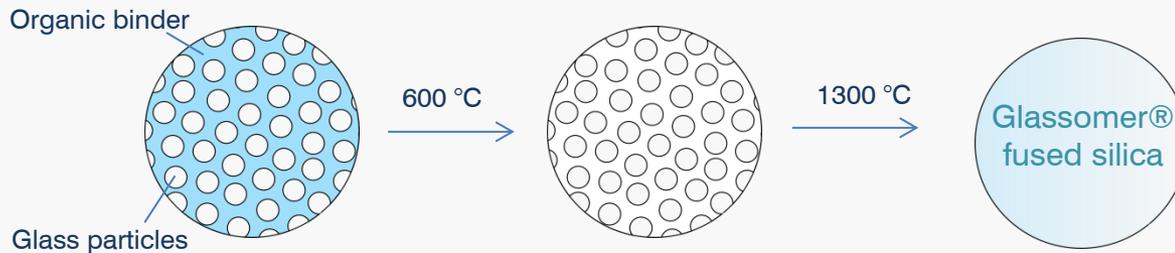
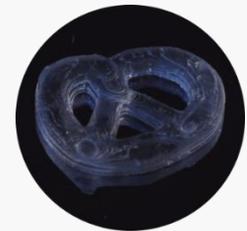
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# Glassomer® - The Revolution in Glass Processing

Check out our videos!

The material properties of fused silica glass surpass those of polymers in durability, transparency and haptics. The raw material costs of glasses are usually significantly lower than those of polymers. Still, polymers are preferred in industrial processing for a simple reason: glass processing and structuring is challenging and expensive, requiring high temperatures (~2000 °C for fused silica), high-performance moulds, hazardous chemicals, polishing tools and special equipment. With the patented Glassomer® Technology, glasses such as fused silica can be structured at room temperature using standard polymer processing techniques. The finished structures are turned into glass at <1300 °C without losing their structure.



F. Kotz, *et al.*, Adv. Mat., 2018 | [Link](#)

F. Kotz, *et al.*, Nature, 544, 337-339, 2017 | [Link](#) F. Kotz, *et al.*, Adv. Mat., 2016 | [Link](#)

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