

# THE GAME-CHANGING INDUSTRY SYSTEM SWARCOFORCE

## GLASS FILLER BEADS

With their outstanding precision and first-class quality, SWARCO micro glass beads make a compelling case in a broad range of applications.



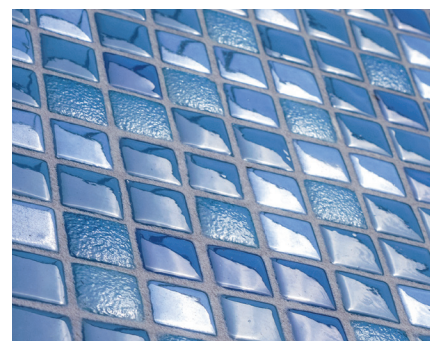
### GLASS FILLER BEADS FOR PAINTS, VARNISHES AND COATINGS

Glass filler beads can be used as filling agents for paints, varnishes and coatings to rely on different physical properties of glass, such as surface improvement and scratch resistance.



### GLASS FILLER BEADS FOR PLASTICS

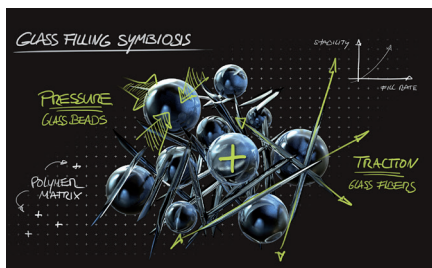
Glass filler beads are added to the materials used for compounding/processing plastic granulate in order to enhance the required qualities. For injection moulding materials, glass filler beads reduce warping and shrinking thanks to their isotropy. They are typically used in technical components, interior and exterior automotive parts, and 3D printed materials.



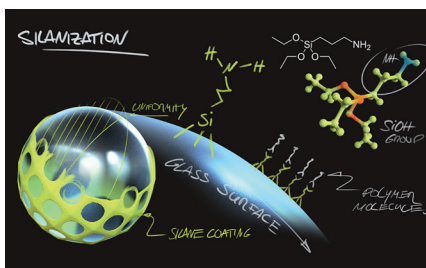
### GLASS FILLER BEADS FOR BUILDING MATERIALS

In the building materials industry, glass filler beads are used, among others, in translucent joint sealants, which break light in addition to reflecting it. This enhances the colours of glass mosaics and glass tiles and gives them a shimmering effect. Surface structures compacted with SWARCOFORCE glass filler beads are waterproof and easy to clean.

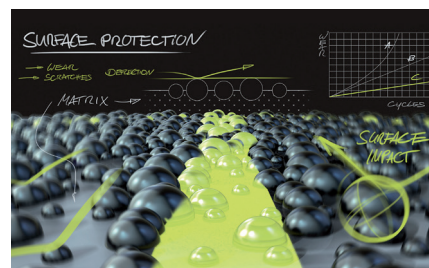
# Technical potentials of using glass beads as filling agents for plastics, building materials, paints, varnishes and coatings:



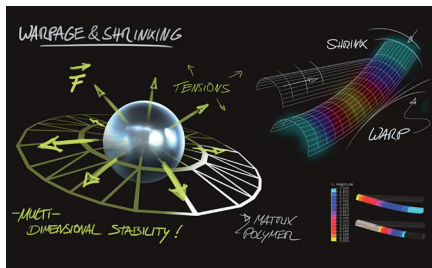
Hybrid combinations of glass beads and glass fibres combine the advantages of both reinforcement materials.



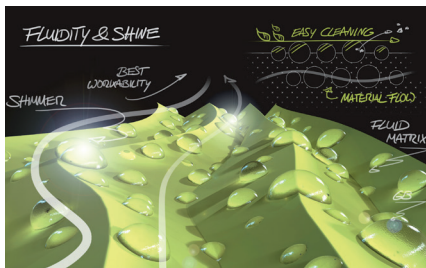
Silanizing the surface of glass beads enhances adhesion to the embedding matrix.



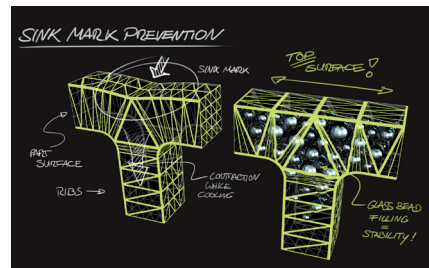
Glass beads increase scratch and abrasion resistance of product surfaces.



Glass beads improve warping and shrinking properties of thermoplastics.



Surface properties, such as product gloss level and haptics, can be influenced and enhanced with glass beads.



In plastics processing, the use of glass beads can reduce sink marks.

## Technical Data

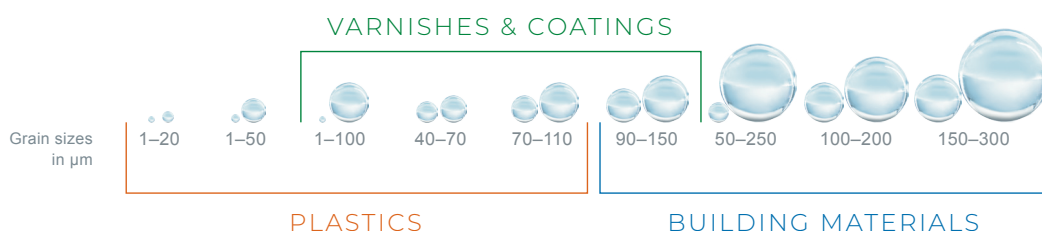
MATERIAL	Specific weight	Bulk weight	Roundness	Hardness
The glass filler beads are made from melted soda-lime glass cullet. Impurities are permissible only up to a max. of 0.1 percentage by weight.	~ 2.5 g/cm <sup>3</sup>	~ 1.5 kg/l	> 80 %	acc. to. Mohs ~ 6 acc. to. Rockwell ~ 46 acc. to. Vickers ~ 645

## CHEMICAL COMPOSITIONS

SiO <sub>2</sub>	68.0–75.0 %	CaO	7.0–12.0 %
Al <sub>2</sub> O <sub>3</sub>	0–2.5 %	Na <sub>2</sub> O	12.0–18.0 %
MgO	0–5.0 %	Other	max. 2.0 %

## SIEVINGS AND APPLICATIONS

Many different grain sizes are available, and the production process ensures narrow tolerance ranges. Further customized particle-size distributions are possible upon request.



## SILANIZATION

SWARCOFORCE glass filler beads can be used with a very wide variety of coatings, which defines the interaction between the glass and the matrix material used (e.g. the adhesion between glass and plastic).

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