

# SWARCOFORCE Glass Filler Beads

## TECHNICAL INFORMATION

### DESCRIPTION / APPLICATION

SWARCOFORCE glass filler beads are high-grade filling agents that contribute to improving the properties (e.g. physical, optical, mechanical) of plastics, resins, paints, varnishes, coatings and building materials.

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).

SWARCOFORCE glass filler beads have an influence on the properties of the end product such as rigidity and pressure resistance, warping and shrinking behaviour, fluidity, abrasion resistance, tensile strength, impact resistance, colour, scratch resistance, surface gloss, etc.

### PRODUCT RANGE

Particle size	Particle size distribution (microns, by volume)			Top Cut
	d10	d50	d90	d97
1–20	3–6	7–10	12–16	18–23
1–50      Typ 1	15–25	30–40	50–60	60–70
1–50      Typ 2	5–15	20–35	45–55	60–70
1–100	20–35	40–70	75–95	90–105
40–70	30–45	50–65	65–80	75–85
70–110	70–85	90–105	105–120	115–130
90–150	90–110	120–140	145–160	150–165
50–250	50–90	125–200	200–260	245–270
100–200	100–150	140–180	190–210	200–225
150–300	150–200	200–260	260–310	300–320

Further customized particle-size distributions are possible upon request.

### MATERIAL

#### Chemical Composition

SWARCOFORCE glass beads are made of melted soda-lime glass cullet:

SiO <sub>2</sub>	68,0-75,0 %
Al <sub>2</sub> O <sub>3</sub>	0-2,5 %
MgO	0-5,0 %
CaO	7,0-12,0 %
Na <sub>2</sub> O	12,0-18,0 %
Others	max. 2,0 %

For technical production reasons, impurities, additives, and oversized particles of up to 0.1 percent by weight may occur. Dust and undersized particles (unless otherwise specified in the sieve curve) are possible up to 0.5 percent by weight.

## PRODUCT INFORMATION

<b>Specific weight</b>	~ 2,5 g/cm <sup>3</sup>
<b>Bulk weight</b>	~ 1,5 kg/l
<b>Hardness</b> by Mohs	~ 6
by Rockwell	~ 46
by Vickers	~ 645
<b>Roundness</b>	> 80 %

## SILANIZATION

To enable better adhesion between the glass bead and the embedding material, the glass beads are equipped with a special coating (silane). The silane used is adapted to the respective matrix material.

Embedding material/Matrix material		Recommended silane type
Thermosets/ Elastomers	Epoxy	C2 / C3
	Melamine	C2 / C3
	Phenol	C4
	Polyester	C1
	Polyurethane PU	C2 / C3
	Silicone	C3
Thermoplastics	Acrylic resin, unsaturated	C1
	Acrylic resin, saturated	C3
	Acrylonitrile-butadiene-styrene ABS	C2
	Polyamide PA	C3
	Polybutylene terephthalate PBT	C2 / C3
	Polycarbonate PC	C3
	Polyether sulphone PESU	C3
	Polyethylene PE	C1
	Polymethylmethacrylate PMMA	C3
	Polyoxymethylene POM	C3
	Polypropylene PP	C1
	Polystyrene PS	C2 / C3
	Polysulfone PSU	C3
	Polyvinyl chloride PVC	C3
	Styrene-acrylonitrile SAN	C3
	Thermoplastic Polyurethane TPU	C3

## PACKAGING

- In paper bags of 25 kg with plastic inner bag.
- Grain Size 1–20 µm in paper bags of 18 kg with plastic inner bag.
- Packaging is available in 800–1000 kg big bags on customer request.

## STORAGE

- Storage of the products in closed, dry halls.
- Shelf life: 6 months in original packaging, protected against frost, overheating and direct sunlight.
- SWARCOFORCE glass filler beads should be brought into the production hall one day before processing to avoid problems with moisture due to temperature differences.
- Moisture protection: desiccant bag (Attention – Remove before use!)

## IMPORTANT INFORMATION

Please consider our General Terms and Conditions and the general notes of the Technical Information Sheet! No liability is accepted for any errors! The information is provided to our best knowledge and experience. This information is, however, no warranty for any properties of the material. We provide this information without obligation, also regarding the rights of third parties. The user has to make sure that the material is appropriate for the respective application.