



**SiLibeads<sup>®</sup> AIR Hollow Glass Beads**

are high-performance fillers of thin-walled micro-borosilicate glass, combining chemical stability, low density and high compressive strength to boost adhesives, coatings, and injection moulding.

They enhance material efficiency and durable end products across many applications.

**SiLibeads<sup>®</sup>**  
...light and strong products

## Application Overview

Tailored solutions for demanding industries



### Sealants & Adhesives for Construction

SiLibeads® AIR Hollow Glass Beads improve silicones, acrylates and adhesives with **light-weight, mechanically robust** fillers, enhancing application, layer strength, and consistent performance.



### Composites for Building & Construction

Composite materials in construction benefit from SiLibeads® AIR Hollow Glass Beads, providing **insulating** properties and high strength for improved durability and surface quality.



### Paint, Varnish & Coating Industry

SiLibeads® AIR Hollow Glass Beads improve paints, varnishes and coatings with better **viscosity control**, enhanced **surface structure** and improved **optical properties**, ensuring consistent performance and durability.



### Casting Resins for Industrial Applications

Casting resins benefit from SiLibeads® AIR Hollow Glass Beads, improving flow, **dimensional stability** and **reduced shrinkage**, supporting larger castings, finer detail and consistent performance.



### Automotive Applications

Automotive applications, adhesives, sealants, resins and rubbers benefit from SiLibeads® AIR Hollow Glass Beads, **enhancing consistency with high roundness and narrow size distribution** while boosting durability.



### Oil Drilling and Offshore Construction

SiLibeads® AIR Hollow Glass Beads are ideally suited as a filler material for insulating coatings in drilling applications, thanks to their **low thermal conductivity and excellent pressure resistance**.

## Customised solutions for every industry

We provide solutions tailored to your specific requirements. Discover the benefits of our products across a wide range of applications. Arrange a free consultation with our SiLi team: **+49 9277 9940** or **[silibeads@sili.eu](mailto:silibeads@sili.eu)**.

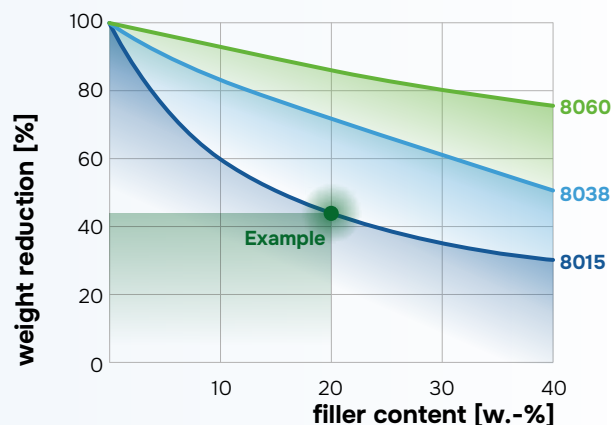
# Advanced Properties

for high-performance filler applications

## Weight Reduction

Lightweight materials reduce weight, making processing and installation easier.

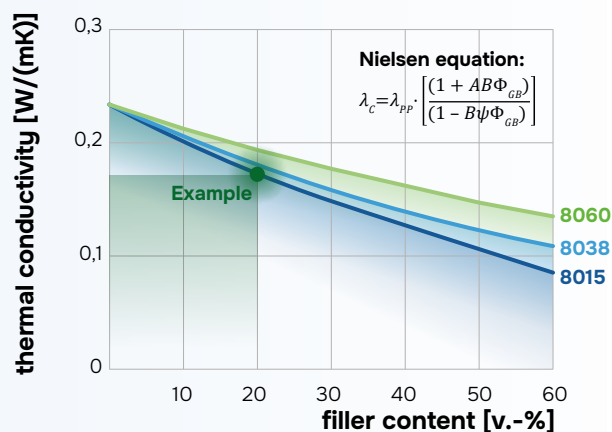
- **Facade Paint:** Adding SiLibeads® AIR reduces the weight of standard wall paint by up to 30%, (3-5 kg of weight saving per bucket).
- **Weight Reduction in Molded Vehicle Plastics:** reduces fuel consumption and emissions; car dashboard weight (5-15 kg) can be cut by up to 30% (3.5-10.5 kg) using SiLibeads® AIR Hollow Glass Beads.
- **Lower Energy Costs in Transportation:** Reducing weight leads to lower energy consumption.



## Improved Insulation

Enhances energy efficiency and provides thermal and acoustic benefits.

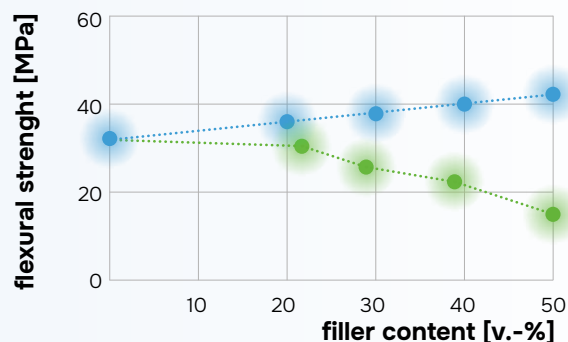
- **Insulating Building Materials (Plasters, Paints):** SiLibeads® AIR Hollow Glass Beads reduce heat absorption, improve energy efficiency, and can achieve >50% thermal conductivity reduction in building materials.
- **Fillers in Vacuum-Insulated Panels:** Due to their low electrical conductivity and hollow structure, SiLibeads® AIR are ideal for electrical and acoustic insulation applications.



## Improved Strength

Tailored surface silanization for enhanced properties of composites for demanding applications.

- **Enhanced Adhesion** through “molecular bridges” between glass and the polymer matrix.
- **Tailored Properties:** Different silanes offer various functional groups (such as amino, epoxy, or thiol), allowing customization for specific matrix materials.
- **Improved Mechanical Properties:** Better adhesion leads to increased tensile strength, flexural strength and overall durability of the composite.



Polymer Matrix + SiLibeads® AIR

with silanization



Learn more about SiLibeads® AIR Hollow Glass Beads here:  
[www.sili.eu/en/products/glass-beads/silibeads-air-hollow-glass-beads/](http://www.sili.eu/en/products/glass-beads/silibeads-air-hollow-glass-beads/)

[www.sili.eu](http://www.sili.eu)

# SiLibeads® AIR

## SiLibeads® AIR Hollow Glass Beads

### Standard Range\*\*

Article	(True) Density [g/cm³]	Bulk Density [g/cm³]	Particle Sizes D10 / D50 / D90 [µm]	Crushing Strength		Thermal Conductivity (at 20 °C) [W m⁻¹ K⁻¹]
				[MPa]	[psi]	
8015	0.15	0.10	10 / 30 / 80	2	300	0.0498
8020	0.20	0.12	15 / 30 / 80	4	500	0.0503
8025	0.25	0.15	15 / 30 / 70	5	750	0.0512
8032	0.32	0.19	15 / 30 / 50	14	1.500	0.0535
8038	0.38	0.21	15 / 30 / 50	36	5.200	0.0654
8040	0.40	0.23	15 / 35 / 55	28	3.000	0.0654
8046	0.46	0.26	15 / 35 / 60	41	6.000	0.0777
8050	0.50	0.32	15 / 35 / 65	42	6.000	0.0811
8055	0.55	0.34	15 / 35 / 55	55	8.000	0.0876
8060	0.60	0.35	15 / 35 / 60	55	8.000	0.0934
8065	0.65	0.38	15 / 35 / 50	110	16.000	0.0960
8070	0.70	0.42	15 / 25 / 45	124	18.000	0.1017
8082	0.60	0.35	15 / 35 / 60	82	12.000	0.0990
80100	1.00	0.60	15 / 35 / 55	165	24.000	1.0174
80150	1.50	0.42	3 / 5 / 10	190	28.000	n.a.

### Technical Data

Size Range [µm]	10 - 150
(True) Density [g/cm³]	0.15 - 1.50
Bulk Density [g/cm³]	0.10 - 0.60
Rate of Floatage [%]	90 - 95 (typical)
pH-Value	8.0 - 9.5
Softening point [°C]	625
Appearance	colorless rigid spheres; white powder in bulk

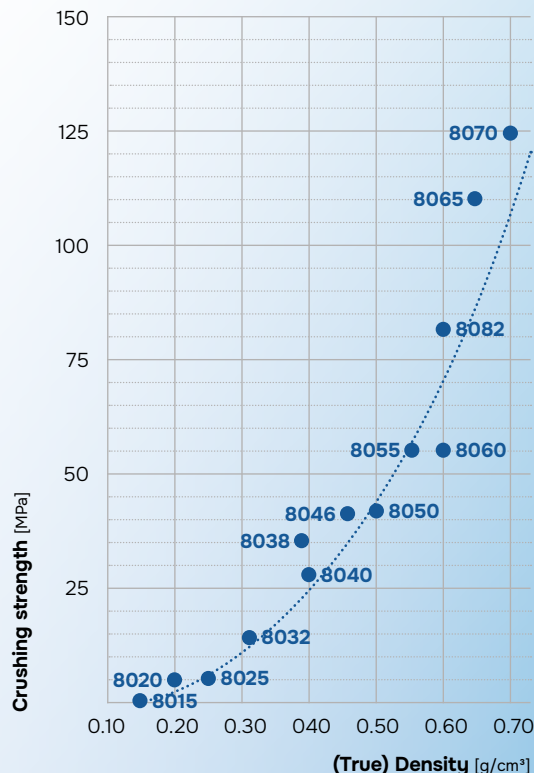
### Chemical Analysis [%]\*

SiO₂	72.5
B₂O₃	11.5
CaO	10.0
Na₂O	5.0
others	1.0

\* Reference values

\*\*Extended Range available by request

## Density-Strength Comparison



## Surface Coatings Selection Guide (Silane)

Thermoplastics (Polymer)	Si1	Si2	Si3
Acrylonitrile	●	●	●
Acrylonitrile Butadiene Styrene (ABS)	●	●	●
Cellulosics	●	●	●
Polyamide (PA) (Nylon)	●	●	●
Polyamide-imide (PAI)	●	●	●
Polybutylene terephthalate (PBT)	●	●	●
Polyethylene terephthalate (PET)	●	●	●
Polycarbonate (PC)	●	●	●
Polyetherketone copolymer (PEK)	●	●	●
Polyethylene (PE)	●	●	●
Polyphenylene oxide (PPO)	●	●	●
Polyphenylene sulfide (PPS)	●	●	●
Polypropylene (PP)	●	●	●
Polystyrene (PS)	●	●	●
Polysulfone (PSF)	●	●	●
Polyurethane (PU)	●	●	●
Polyvinyl butyral (PVB)	●	●	●
Polyvinyl chloride (PVC)	●	●	●

Sealants (Polymer)	Si1	Si2	Si3
Acrylic	●	●	●
Polysulfides	●	●	●
Silicone	●	●	●

Possible Silane Coatings	Si1	Si2	Si3
Si1	Gamma-Methacryloxypropyltrimethoxysilane		
Si2	Gamma-Glycidoxypropyltrimethoxysilane		
Si3	Gamma-Aminopropyltriethoxysilane		

### Thermosets (Polymer)

	Si1	Si2	Si3
Cellulosics	●	●	●
Diallyl phthalate	●	●	●
Epoxy	●	●	●
Furan	●	●	●
Melamine	●	●	●
Nitrocellulose	●	●	●
Phenolic (PF)	●	●	●
Polyester (PES)	●	●	●
Polyimide (PI)	●	●	●
Polyurethane (PU)	●	●	●
Urea-Formaldehyde	●	●	●

### Rubber & Elastomer (Polymer)

	Si1	Si2	Si3
Acrylic	●	●	●
Butyl rubber (IIR)	●	●	●
Epichlorohydrin (ECH)	●	●	●
Neoprene rubber (CR)	●	●	●
Nitrile	●	●	●
Polyurethane (PU)	●	●	●
Polybutadiene rubber (BR)	●	●	●
Polyisoprene rubber	●	●	●
Silicone	●	●	●
Styrene Butadiene Rubber (SBR)	●	●	●
Sulfer-cross linked rubbers	●	●	●
Peroxide-cross linked rubbers	●	●	●

● Recommended ● Alternative

As an alternative, we can also offer a surface treatment of our SiLibeads® AIR with Aerosol 200 in a customised range of 0.2-1%.

