

ECCOSPHERES® GLASS MICROSPHERES

High performance hollow glass microspheres

Introduction

Eccospheres® glass microspheres are hollow thin-walled glass microspheres composed of sodium borosilicate glass. To the naked eye they resemble a fine, white free flowing powder; however magnification reveals them to be near perfect spheres.

Trelleborg AEM manufacture five distinct product series.

W Series

The W series is a special unwashed series perfect for applications such as volume void fillers. Typically referred to as more of a commodity range of microspheres, the W range represents the most economical product offering.

IG Series

Specifically developed for industrial applications the IG series of Eccospheres® glass microspheres are manufactured to the same high standards as other series. This range does not undergo final washing or floating processes.

FTD Series

The FTD series are washed to remove surface salts, this results in an ideal surface topography for resins or surface treatments to key to. The clean ion-exchanged surface ensures compatibility with almost any resin system and in particular this series is recommended for sulphur sensitive systems.

SI Series

Surface salts formed during manufacture are removed via acid washing. This reduces the alkali content and results in a clean surface chemistry compatible with almost any resin system or surface coating.

SID Series

The SID series has the same chemical composition as the SI series; however, due to Trelleborg Emerson & Cuming's unique manufacturing capabilities this series exhibits improved strength, without sacrificing density. High strength ensures survival of the spheres in aggressive processes such as extrusion. All the grades in this series are acid washed to provide a clean surface for either a resin system or surface treatment to bond to.

Typical Properties

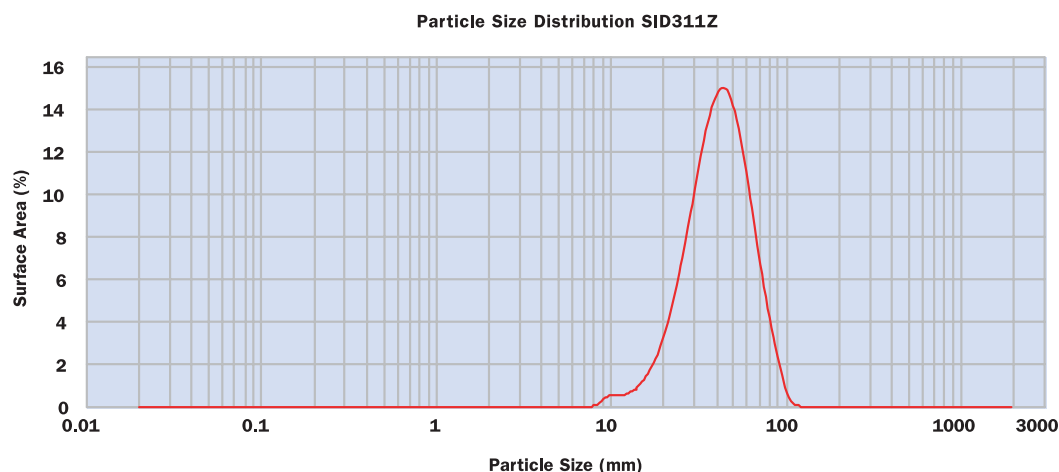
Product Number	Median Particle Size (Microns)	Packing Factor	Isostatic Collapse Pressure Min. 80% Survival		True Particle Density (g/cc)	Range (g/cc)	Flotation (% bulk volume)
			bar	psi			
W-25	50	58 min	35	500	0.25	Target	95
W-30	55	58 min	35	500	0.30	Target	95
IG-101	55	62 min	104	1,500	0.35	0.33 - 0.37	96
IGD-101	55	62 min	158	2,300	0.30	0.28 - 0.32	97
FTD-200	65	62 min	52	750	0.20	0.18 - 0.22	98
FTD-250	55	62 min	83	1200	0.25	0.23 - 0.27	98
SI-100	70	62 min	17	250	0.10	0.08 - 0.12	99
SI-130	65	62 min	21	300	0.13	0.11 - 0.15	99
SI-160	62	62 min	28	400	0.16	0.14 - 0.18	99
SI-200	55	62 min	55	800	0.20	0.18 - 0.22	99
SI-250	52	62 min	124	1,800	0.25	0.23 - 0.27	99
SI-310	50	62 min	310	4,500	0.31	0.29 - 0.33	99
SI-350	50	62 min	379	5,500	0.35	0.33 - 0.37	99
SID-160Z	60	62 min	41	600	0.16	0.14 - 0.18	99
SID-200Z	53	62 min	69	1,000	0.20	0.18 - 0.22	99
SID-230Z	52	62 min	145	2,100	0.23	0.21 - 0.25	99
SID-311Z	50	62 min	379	5,500	0.31	0.29 - 0.33	99
SID-350Z	50	62 min	414	6,000	0.35	0.33 - 0.37	99

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Feature	Advantage	Benefit
Spherical shape	Low resin demand	Lower viscosity Reduced shrinkage Improved flow Can be moulded, cast or sprayed
Low density	Reduced weight	Reduced transportation costs Increased payload
High packing factor	High filler loading	Displacement of expensive resin Maximum density reduction Improved stiffness Cost saving
Unique glass chemistry	High density / strength ratio	Able to withstand many process conditions
High chemical purity	Clean surface chemistry Inert interior gas High silica content	Compatible with almost all resin systems/surface treatments Compatible with platinum catalysts and copper High softening point Non-combustible Excellent water resistance
Partial vacuum	Low thermal conductivity Low dielectric constant	Improved insulation Reduced dielectric properties
Variety of surface treatments	Improved bond between glass and resin Flexibility to meet requirements	Improved strength Optimum performance

Typical Particle Size Distribution Curve



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