



Zircar Zirconia, Inc.
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SINGLE CRYSTAL ZIRCONIA GROG TYPE ZSG



Zirconia Grog Type ZSG.

FEATURES

- Phase Stabilized ZrO_2 Single Crystal
- High Temperature Stability to 2400 °C
- Low Thermal Conductivity
- Custom Size Ranges are Offered
- Excellent Thermal Shock Resistance
- No Outgassing
- Virtually Dust Free Performance

Zircar Zirconia Single Crystal Grog Type **ZSG** is composed of small (0.6 to 1.4 mm) single crystals of zirconia having a cubic structure. These "skull melted" crystallites exhibit virtually no particle breakdown during thermal cycling and provide dust-free performance. Type **ZSG** is useful at temperatures up to 2400°C under oxidizing conditions with no sintering or particle breakdown and minimal sticking.

Zircar Zirconia Single Crystal Grog Type **ZSG** was developed for high temperature catalyst support. Zirconia Single Crystal Grog Type **ZSG** is free flowing, therefore conforming to irregular configurations to fill small and intricate areas.

Type **ZSG** contains no organic binders and will produce no smoke or odor when heated and is available in one standard particle size range. Custom particle size distributions can be manufactured on request.

- Type **ZSG** has a Tyler mesh size of -12 to +28 (1.4 mm to 0.60 mm)

APPLICATION INFORMATION

- **ZSG** Grog is used as a high temperature catalyst support.
- **ZSG** Grog is used as bulk fill insulation.
- **ZSG** Grog is used as ultra high temperature insulation for advanced energy systems.

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Product Data
Bulletin #B-K
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PROPERTIES & CHARACTERISTICS

Composition, Wt%	ZSG-Y20	ZSG-Y13	ZSG-Ce20
ZrO ₂ *	79+	86+	79+
Stabilizer	20 Y ₂ O ₃	13 Y ₂ O ₃	20 CeO ₂
SiO ₂	0.15	0.15	0.15
TiO ₂	0.15	0.15	0.15
Melting Point, °C (°F)	2590 (4694)	2590 (4694)	2680 (4856)
Maximum Use Temperature**, °C (°F)	2300 (4172)	2300 (4172)	2400 (4352)
Bulk Density, g/cc (pcf)	2.75 (170)	2.75 (170)	2.75 (170)
Outgassing	Nil	Nil	Nil
% Shrinkage, 1/2 hr at 2400°C (4352°F)	0	0	0

* 1 - 2 wt% hafnia occurs naturally with zirconia and does not affect performance.

** Maximum use temperature is dependent on variables such as stresses, both thermal and chemical, and the chemical environment that the material experiences.

ORDERING INFORMATION

Zirconia Grog Type **ZSG** is sold in three standard formats listed with their item number in the table below.

Standard Sizes	Item Number
ZSG-Y20, -12 to +28 Tyler, 1 pound	BK001
ZSG-Y13, -12 to +28 Tyler, 1 pound	BK003
ZSG-Ce20, -12 to +28 Tyler, 1 pound	BK004

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