



Zircar Zirconia, Inc.  
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## SINGLE CRYSTAL ZIRCONIA GROG TYPE ZOG



Zirconia Grog Type ZOG.

### FEATURES

- High Purity  $ZrO_2$  Single Crystal (99%+)
- High Temperature Stability to 2400 °C
- Low Thermal Conductivity
- Two Particle Size Ranges are Offered
- Excellent Thermal Shock Resistance
- No Outgassing
- Virtually Dust Free Performance
- Available 'Off the Shelf'

Zircar Zirconia Single Crystal Grog Type **ZOG** is composed of small (0.6 to 2.4mm) single crystals of zirconia having a monoclinic structure. These "skull melted" crystallites exhibit virtually no particle breakdown during thermal cycling and provide dust-free performance. Type **ZOG** 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 **ZOG** was developed for RF (Radio Frequency) induction furnaces operating above 2000°C. These furnaces are typically used in fiber optic draw towers and crystal growing applications where high purity, low electrical conductivity and dust-free performance at extreme temperatures are essential. Zirconia Single Crystal Grog Type **ZOG** is free flowing, therefore conforming to irregular configurations to fill small and intricate areas.

Type **ZOG** contains no organic binders and will produce no smoke or odor when heated and is available in two particle size ranges.

- Type **ZOG-1** has a Tyler mesh size of -8 to +14 (2.4mm to 1.2mm)
- Type **ZOG-2** has a Tyler mesh size of -10 to +28 (1.7mm to 0.6mm)

### APPLICATION INFORMATION

- **ZOG** Grog is used as insulation and crucible support in crystal growing furnaces.
- **ZOG** Grog is used as insulation for glass melting and fiber optic draw furnaces.
- **ZOG** Grog is used as bulk fill insulation.
- **ZOG** Grog is used as ultra high temperature insulation for advanced energy systems.

Zircar Zirconia, Inc.  
PO Box 287  
Florida, NY 10921-0287  
USA

Tel: 845-651-3040  
Fax: 845-651-0074  
email: [sales@zircarzirconia.com](mailto:sales@zircarzirconia.com)  
web: [www.zircarzirconia.com](http://www.zircarzirconia.com)

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### PROPERTIES & CHARACTERISTICS

Composition, Wt%	
ZrO <sub>2</sub> *	99+
SiO <sub>2</sub>	0.15
TiO <sub>2</sub>	0.15
Melting Point, °C (°F)	2715 (4919)
Maximum Use Temperature**, °C (°F)	2400 (4352)
Bulk Density, g/cc (pcf)	2.75 (170)
Outgassing	Nil
% Shrinkage, 1/2 hour at 2400°C (4352°F)	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 **ZOG** is sold in a two standard weight packages, which are listed along with their item number in the table below.

Standard Sizes	Item Number
ZOG-1, -8 to +14 Tyler, 1 pound	BF001
ZOG-1, -8 to +14 Tyler, 10 pounds	BF002
ZOG-2, -10 to +28 Tyler, 1 pound	BG001
ZOG-2, -10 to +28 Tyler, 10 pounds	BG002

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Florida, NY 10921-0287  
USA

Tel: 845-651-3040  
Fax: 845-651-0074  
email: [sales@zircarzirconia.com](mailto:sales@zircarzirconia.com)  
web: [www.zircarzirconia.com](http://www.zircarzirconia.com)

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