

Monofrax® Z HR
Zirconia
Fused Cast Refractory

Product Description

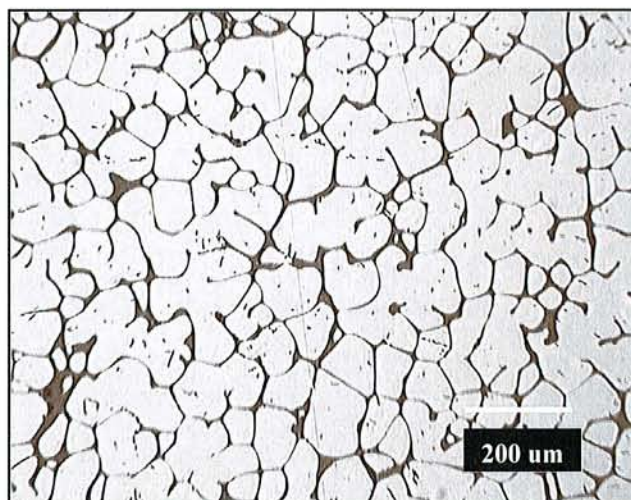
Monofrax ZHR is a fusion-cast zirconia refractory, specifically developed for application in furnaces melting high quality, specialty glasses using electrical energy. Examples of such applications are TFT-LCD glass for computer monitors and flat screen TV, Alumina Silicate glass, hard borosilicate glass, and halogen lighting glass. The chemical composition and the manufacturing process for making Monofrax ZHR have been carefully tailored to achieve higher electrical resistivity, while retaining other key attributes of Monofrax Z, such as extremely low blister and stoning potential, excellent corrosion resistance, virtually no exudation, and nearly as good thermal shock resistance.

Manufacturing Description

Monofrax ZHR is produced using high quality raw materials. The manufacturing process is similar to that of Monofrax Z. Blocks ranging in weight from 20 lb. to 1700 lb. have been successfully produced. Monofrax ZHR blocks are inspected to stringent specifications to ensure excellent dimensional control, tight joints, and superior surface quality, all achieved under ISO 9001 quality system.

Typical Chemistry

ZrO ₂	>90%
Al ₂ O ₃	<1.5%
SiO ₂	<8.0%
Na ₂ O	<.05%
Other	<1.0%



Micrograph Description

Monofrax ZHR is a bi-phasic refractory, containing at least 90% ZrO₂ by weight, with the balance being a glassy phase. The micrograph shows ZrO₂ grains, in light gray color, surrounded by a thin layer of glassy phase, in darker gray color. Isolated black areas show very little porosity found in Monofrax ZHR.

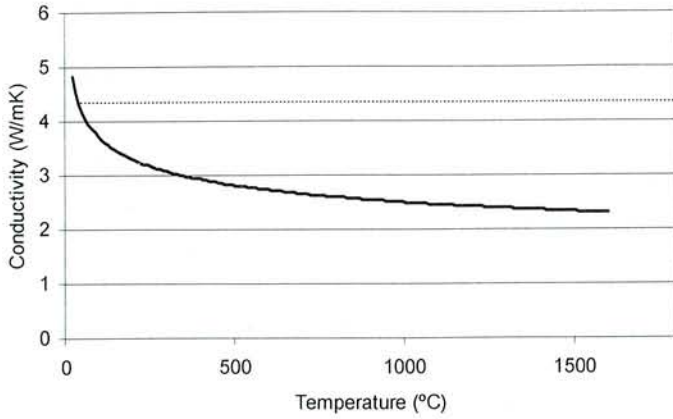
Typical Applications

- Glass contact areas for specialty glasses
 - TFT-LCD
 - Aluminosilicate
 - Hard borosilicate
 - Halogen lighting



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Typical Thermal Conductivity

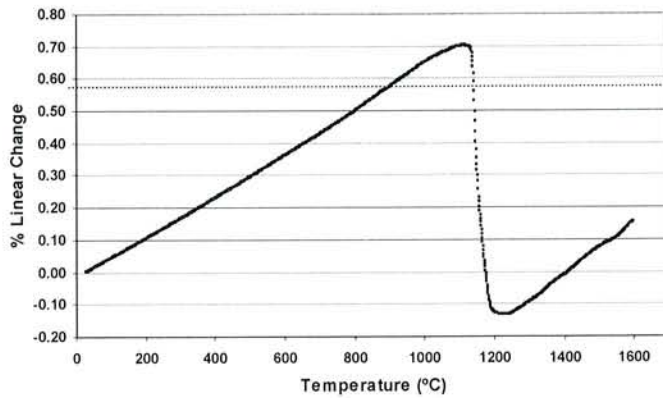


Monofrax[®] Z HR Zirconia Fused Cast Refractory

Typical Physical Properties:

Bulk Density - lb./ft ³ (gm/cc)	320 (5.13)
Apparent Porosity %	2
Linear Change Under Load % ¹	<2
Modulus of rupture	
Cold psi (kg/cm ²) ²	>10,000 (700)
Cold Crushing Strength psi (kg/cm ²) ²	43,200 (3,037)

Typical Thermal Expansion

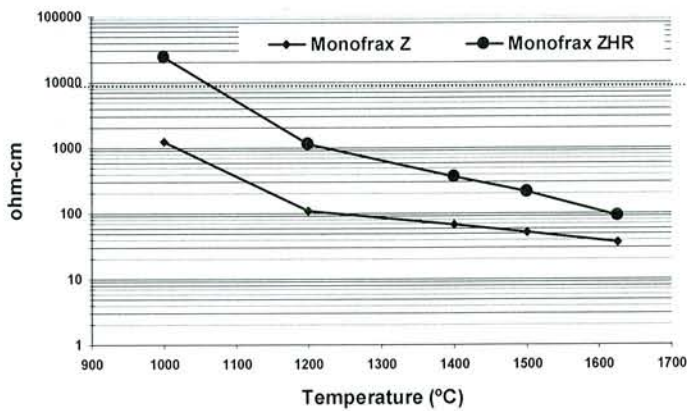


Available Casting Techniques

- EPIC-3 (Void-free)
- DCL (Essentially void-free)

1 DIN-51053, 29psi, 1600C, 100 hours
 2 ASTM C-133
 3 ASTM C-885

Typical Electrical Resistivity



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