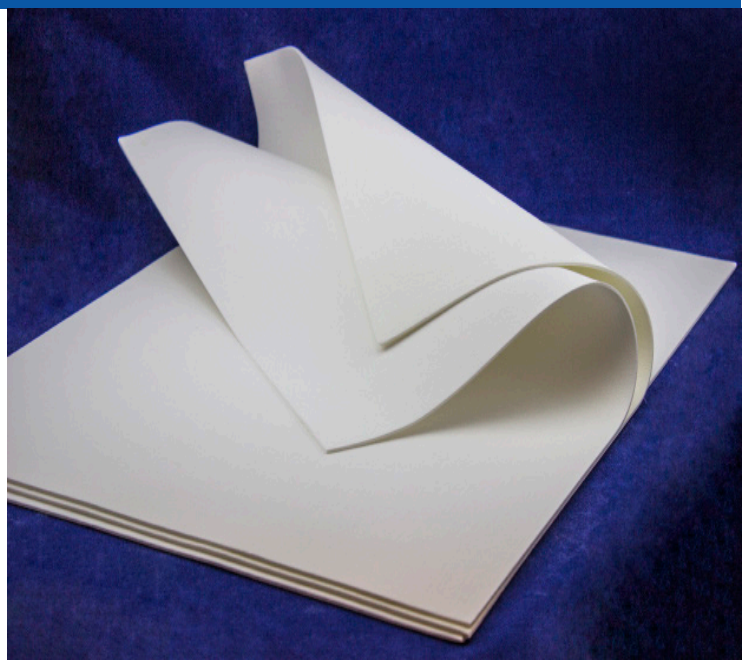
Zircar

Advanced Fibrous Ceramics

ZYF-50, 100, 150 mil thick

2000 °C Yttria Stabilized Zirconia Felt

Zircar Felt Type ZYF is an excellent all-purpose high temperature insulation that can be used as a separator, wrapper, fixture, gasket, cushion, pillow, pad, barrier, cover, layering or packing material in high temperature applications. Some specific applications for ZYF are in the Czochralski method of crystal growing as iridium and platinum crucible insulation, precious metal condensate reclamation material and glass fiber manufacturing.



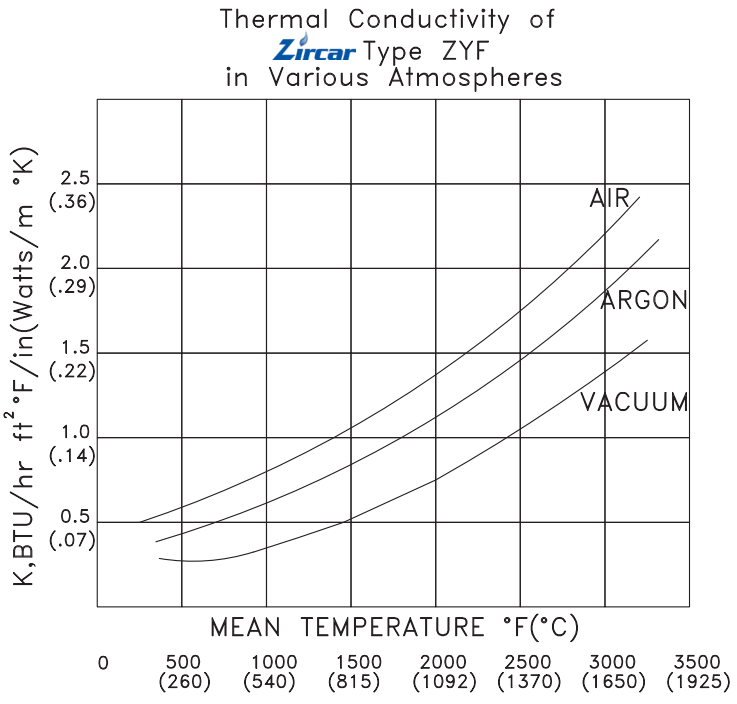
We use the highest purity materials in our products resulting in only minimal trace oxides and no organics that off-gas when heated. Because Zircar zirconia fibers are yttria stabilized, they do not undergo the disruptive phase transition of pure zirconia. ZYF is non-reactive to alkali vapors, salts or strong hot solutions and is not wet by most molten metals. ZYF has low adsorption surface area and vapor pressure, making it useful in high vacuum.

Zirconia has the lowest thermal conductivity of any commercial refractory and the serrated, mechanically interlocked fiber construction makes ZYF an ultra-insulator, the only choice at 2000 °C in air.

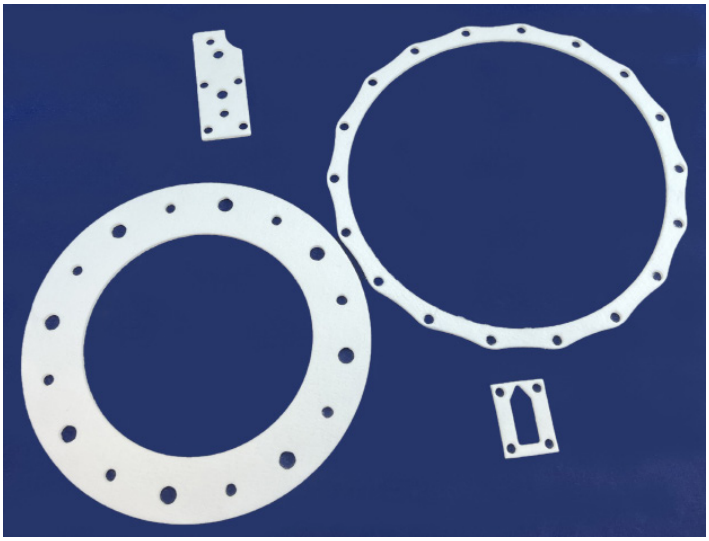
Properties (Nominal)	**ZYF**
Bulk Porosity, %	96
Bulk Density, lb/ft^3 (g/cm^3)	15 (0.24)
Melting Point, °C (°F)	2593 (4700)
Maximum Use Temperature, °C (°F) [1]	2000 (3632)
Vapor Pressure @ 2500 °F, Torr	8 x 10^{-12}
Linear Shrinkage, 1 hr. @ 1650 °C Isothermal Soak, %	5
Specific Heat BTU / lb - °F	
@200 °F	.13
@4300 °F	.18
Chemical Composition (Nominal)	
Oxide	**Wt%**
ZrO_2 [2]	89+
Y_2O_3	10
Al_2O_3	<0.01
SiO_2	<0.02

[1] Use temperature is dependent on variables such as chemical environment and stresses; both thermal and mechanical.

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



The penny for scale shows the wrappability of ZYF-100 and ZYF-50



ZYF felt can be machined to your gasket design

ALL-PURPOSE
ZYF is an excellent all-purpose high temperature insulation that can be used as a separator, wrapper, fixture, gasket, cushion, pillow, pad, barrier, cover, layering or packing material.

HIGH TEMPERATURE SETTER
ZYF is used in powder metal sintering in vacuum and hydrogen atmospheres, quartz glass melting and hot working operations, and ceramic sintering.

THERMAL PROTECTION BARRIER
ZYF has been incorporated into the design for heat shield modules in space capsule re-entry

HIGH TEMPERATURE INSULATION
Used between layers of refractory metal heat shields to improve insulation performance in vacuum furnaces and hot isostatic presses.

CRYSTAL GROWTH
ZYF acts as thermal insulation and a cushioning barrier as well as a platform for iridium recovery in the Czochralski method of oxide crystal growing. In this method an iridium crucible is often used to contain the melt. Iridium, a precious metal in the platinum group vaporizes at high temperature. A layer of ZYF wrapped around the iridium crucible creates a physical barrier between the fragile crucible and the backup insulation. The steep thermal gradient across the ZYF causes condensation of the iridium into the felt from which it can then be easily segregated and recovered.

To Place an Order

Call: 845-651-3040
email: sales@zircarzirconia.com
store: www.zircarzirconia.com/store

Type ZYF

Size	Item Number		
	ZYF-50	ZYF-100	ZYF-150
12″x 18″	CA017	CB058	CBA01
18″x 24″	CA001	CB001	CBA03
18″x 27″		CB047	
24″x 24″			CBA04

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