



ZYW-15 & ZYW-30A

High Temperature Yttria Stabilized Woven Zirconia Cloth

ZYW cloths are flexible textiles composed of yttria stabilized zirconia fibers that offer extreme temperature and chemical resistance in a flexible form. ZYW cloths provide the lowest thermal conductivity of any commercially available refractory material in their class. They are manufactured using the original ZIRCAR process at our plant in Florida, NY, USA and are constructed of continuous individual filaments mechanically interlocked in a woven structure.

ZYW ceramic textiles are ideal for temperatures up to 2200 °C and are suitable for applications such as high energy battery separators, thermal insulation in crystal growing furnaces, and hot gas filtration. The fine capillary and pore structure of ZYW, in combination with the hydrophilic nature of zirconia, impart excellent wetting, solution retention, and wicking characteristics to these materials. The cloths require neither binders nor supporting wires to maintain their construction and will comply somewhat to both tensile and compressive forces due to the mechanical interlocking of the fibers.

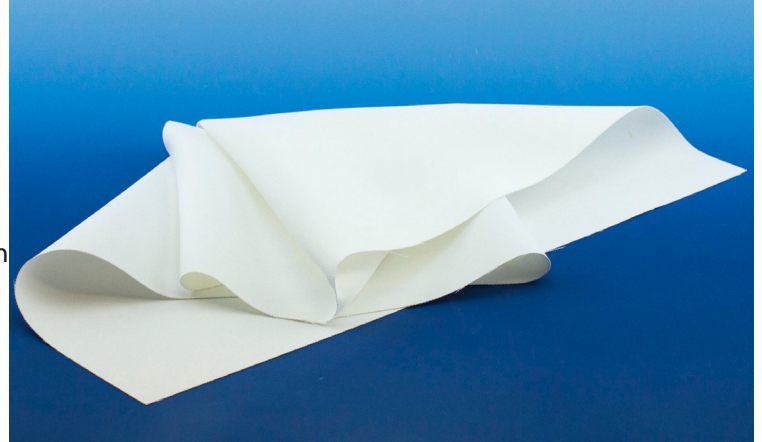
ZYW has exceptional resistance to molten alkali metal chlorides and carbonates at temperatures as high as 700 °C and to aqueous solutions of alkali metal hydroxides at temperatures as high as 220 °C. These materials will tolerate exposure to a mineral acid at its boiling point for short lengths of time. Extensive contact with hot phosphoric acid, however, causes embrittlement and stiffening due to the formation of zirconium phosphate.

Molten metals such as copper, aluminum, iron steel, etc., do not wet ZYW and therefore cause little change in either the chemical or the physical nature of these products through many hours of exposure.

ZYW has excellent wicking and wetting solution retention characteristics due to the fine capillary and pore structure of weave in combination with the hydrophilic nature of zirconia and the serrated surface of the individual fibers in the threads.

ZYW-15 is 15 mil thick square weave.

ZYW-30A is 25 mil thick satin weave.



Standard Product Sizes & Ordering

To Place an Order

Call: 845-651-3040

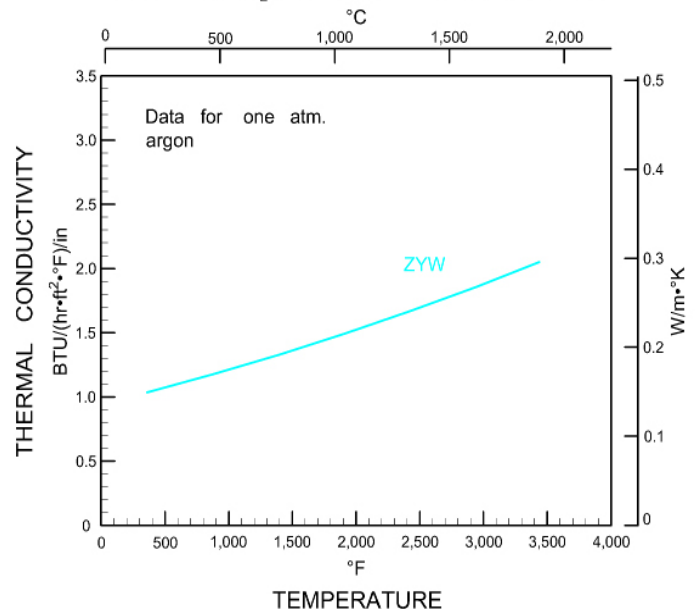
email: sales@zircarzirconia.com

store: www.zircarzirconia.com/store

Type ZYW

Size	Item
ZYW-15 18" x 24"	CD001
ZYW-30A 18" x 24"	CE001

THERMAL CONDUCTIVITY OF ZIRCAR ZrO₂ FIBROUS CERAMIC INSULATION



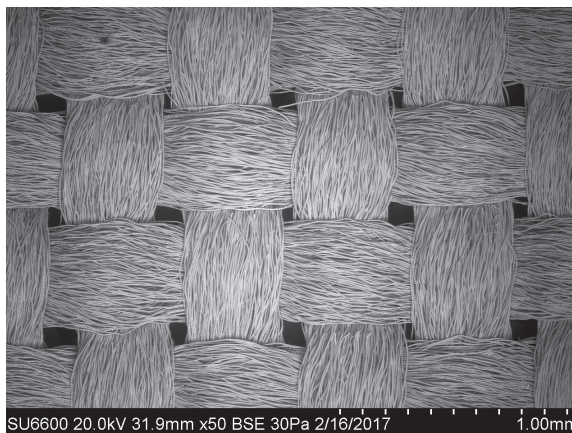
Properties & Characteristics

ZYW Properties (Nominal)	ZYW-15	ZYW-30A
Thickness, mils	15	25
Bulk Density, g / cc (pcf)	1.02 (64)	0.94 (59)
Porosity, %	87	83
Melting Point, °C (°F)	2590 (4694)	2590 (4694)
Tensile Strength, g / cm width (lb / inch width)	154 (0.9)	872 (5)
Weight / Area, grams / meter ² (oz / yd ²)	291 (8.6)	772 (22)
Continuous Maximum Use Limit, °C (°F)*	2200 (3992)	2200 (3992)
Specific Heat, J / kgK @ 93 °C (BTU / lb oF @ 200 °F)	544 (0.13)	544 (0.13)
Specific Heat, J / kgK @ 2370 °C (BTU / lb oF @ 4298 °F)	754 (0.18)	754 (0.18)
Vapor Pressure @ 1370 °C (2498 °F), Torr	8 x 10 ⁻¹²	8 x 10 ⁻¹²
% Shrinkage after 1 hr. @ 1650 °C (3002 °F) isothermal soak	5.5	3.9
Chemical Composition (nominal)		
Oxide	Wt%	
ZrO ₂ **	90	90
Y ₂ O ₃	10	10
Trace Impurities	<0.25	<0.25

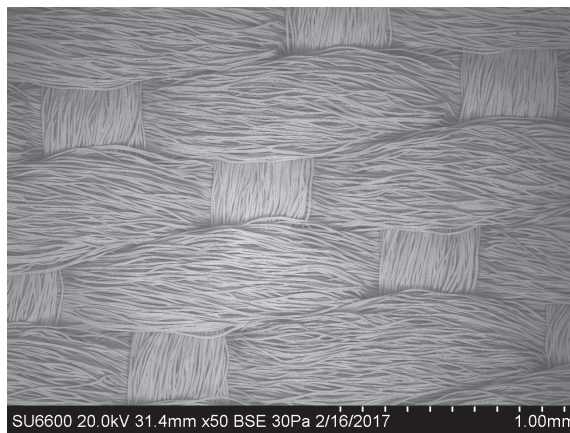
*Use temperature is dependent on variables such as thermal and mechanical stresses, and the chemical environment that the material experiences.

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

Product Micrographs



Also known as a 'plain weave', the square weave results from a simple, one-over one-under, weaving pattern.



The micrograph Shows a view of ZYW-30A, satin weave zirconia cloth.



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