

## Y

# Yttria Felt, Cloth & Bulk Fiber

**The Only Source for Fibrous Yttria Products Made With the ZIRCAR Process**

### Different Product Formats Offered

- **Thin and Thick Felt**
- **Tricot Knit Cloth**
- **Square Weave Cloth**
- **Satin Weave Cloth**
- **Bulk Fiber**

### Y Features

- 99+% Pure Yttria
- 100% Inorganic - No Binders
- Low Thermal Conductivity
- Excellent Thermal Shock Resistance
- Designed for Uses in Extremely Corrosive, High Temperature Environments
- Extreme High Temperature Stability
- Usable in Multiple Atmospheres

### The **Zircar** Fibrous Ceramics Advantage

Low Mass,  
Low Heat Storage &  
Low Thermoconductivity  
*means*  
High Thermal Shock Resistance,  
High Insulation Performance,  
Higher System Efficiency &  
Lower Energy Costs



### High Purity... Extremely High Use Temperature...

High purity fibrous yttria products can withstand temperatures to 2400 °C.

### Product Information

**Zircar** Yttrium Oxide  $Y_2O_3$  fibrous ceramic insulation is offered here in its pure and stable metal oxide yttria form, which is not attacked by most molten metals, including lithium and titanium. The fibers have an average diameter of 4 - 6 microns.

Yttria felt is used as thermal insulation for high temperature microwave sintering and in the development of large grain Rare Earth Barium Copper Oxide (REBCO) melt processed high temperature superconductors (HTS). Our yttria fibers and textiles are made by the same unique ZIRCAR process used for manufacturing yttria-stabilized zirconia textiles at our plant in Florida, NY, USA.

Our high purity yttria fiber and textiles are offered in different standard product forms:

- YOBF** bulk fiber
- YF** felt in two thicknesses
- YK-15** tricot knit cloth
- YW-15** square weave cloth
- YW-30** satin weave cloth

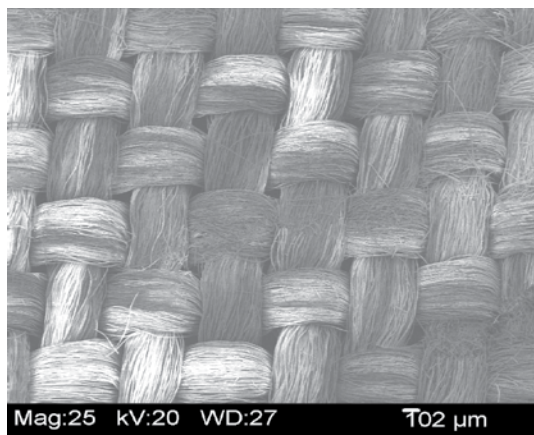
For more information,  
phone: (845) 651-3040  
email: [sales@zircarzirconia.com](mailto:sales@zircarzirconia.com)  
website: [www.zircarzirconia.com](http://www.zircarzirconia.com)

## Properties & Characteristics

Properties (Nominal)		YF-100
Bulk Density, lb/ft <sup>3</sup> (g/cm <sup>3</sup> )		23 (0.37)
Bulk Porosity, %		93
Melting Point °C (°F) <sup>(1)</sup>		2410 (4370)
Tensile Strength, g/cm width (lb/in width)		198 (1.11)
Loss on Ignition, Wt% 1 hr at 950 °C (1742 °F)		5
Linear Shrinkage, % 1 hr. @ 1650 °C (3002 °F)		9
<b>Chemical Composition (Nominal)</b>		
	<b>Oxide</b>	<b>Wt%</b>
	Y <sub>2</sub> O <sub>3</sub>	99+
	Fe <sub>2</sub> O <sub>3</sub>	0.02
	SiO <sub>2</sub>	0.02
	Al <sub>2</sub> O <sub>3</sub>	0.03

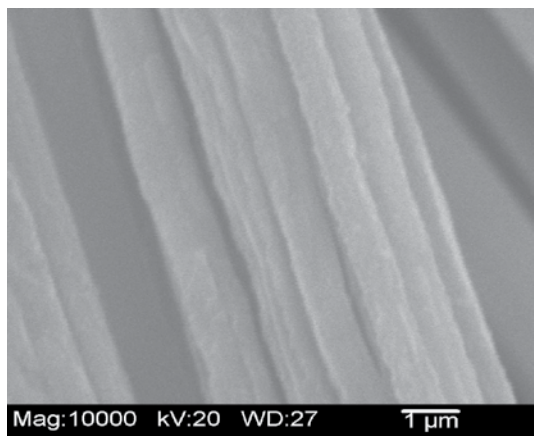
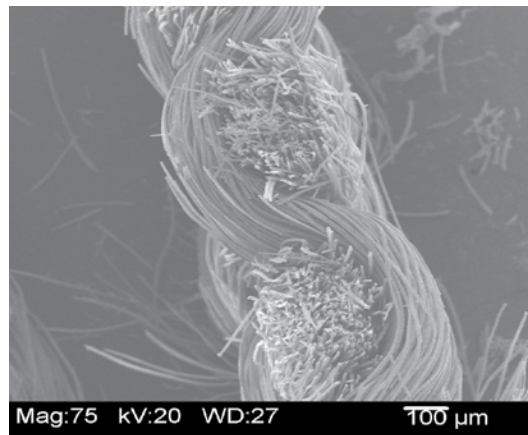
<sup>(1)</sup>Melting point is dependent on variables such as the chemical environment and stresses; both thermal and mechanical.

## Product Micrographs



Also known as a 'plain weave', the YW-15 square weave results from a simple, over one - under one, weaving pattern.

The micrograph on the right shows the cut edge of YW-15 and the individual filaments of the tied together threads.



The micrograph on the left shows an individual fiber in a YK-15 thread. This filament shows the serrated nature of the fibers and the 4 - 6 micron diameter size.



Zircar Zirconia, Inc.  
87 Meadow Road  
P.O. Box 287  
Florida, New York 10921

Phone: (845) 651-3040  
Fax: (845) 651-0074  
Email: sales@zircarzirconia.com  
www.zircarzirconia.com

## Product Samples

### FREE SAMPLES

Call: 845-651-3040

email: sales@zircarzirconia.com

Product Type	Item #
YF-50	SAMPLE-E02A
YF-100	SAMPLE-E02B
YK-15	SAMPLE-E02C
YW-15	SAMPLE-E02D
YW-30	SAMPLE-E02E
YOBF	SAMPLE-E02F



## Custom Design Quotations

### Contact Us For A Quotation For Your Custom Part

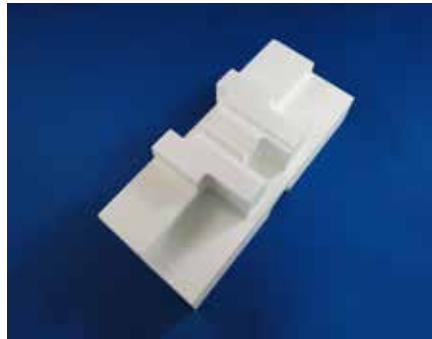
Call: 845-651-3040

email: sales@zircarzirconia.com

**Zircar** manufactures and machines custom fibrous insulation shapes to your design specifications.

Our capabilities include:

- 3D CNC Machining
- Layered Configurations
- Lap Joined Boards and Cylinders
- Diamond Wire Splitting of Cylinders



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## Standard Product Sizes & Ordering

Yttria products are available in the standard sizes shown below. Please contact our Sales Department for pricing and availability.

### To Place an Order

Call: 845-651-3040

email: [sales@zircarzirconia.com](mailto:sales@zircarzirconia.com)

## Y

Size	Item Number					
	YF-50	YF-100	YK-15	YW-15	YW-30	YOBF
12" x 12"	E02A01	E02B01	E02C01	E02D01	E02E01	
1 LB						E02F01

## Other Interesting Products



**Zircar** has made its strongest, highest density, highest temperature rated product type FBD, now available in a new larger size, 9" x 18", and up to 3" thick.



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