

ZYP

Yttria Stabilized Zirconia Powder

**The Unrivaled Industry Leader
of ZrO₂ Insulation**

Available in Three Surface Areas

- **ZYP-30 (25-35 m²/g)**
- **ZYP-40 (35-45 m²/g)**
- **ZYP-55 (50-60 m²/g)**

ZYP Features

- Made using our own unique **Zircar** ZYBF Bulk Fibers
- Phase Stabilized with 10 wt% Yttria
- High Purity
- Excellent in Corrosive, Oxidizing & Reducing Atmospheres
- Extreme Environmental Stability
- Low Sintering Temperature
- 35 Kg Lot Size

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



Super Fine... Inorganic Powder... Customizable...

Yttria stabilized zirconium oxide powder is nano-sized.

Product Information

Zircar Zirconium Oxide Powder Type ZYP is an ultrafine powder that is used as filtration media, thermal barrier coating, and a polishing aid. ZYP is manufactured from **Zircar** ZYBF Bulk Fibers which are made using the original ZIRCAR Process at our plant in Florida, NY, USA. These materials are fine, highly reactive powders composed of nearly 100% zirconia phase stabilized with yttria. It is offered with three different surface areas; Sintering of ZYP powder particles begins at around 900 °C and zirconia ceramic bodies approaching theoretical density can be achieved using ZYP as low as 1450 °C.

ZYP-30 has a BET specific surface area of 25-35 m²/g.

ZYP-40 is 35-45 m²/g.

ZYP-55 is 50-60 m²/g.

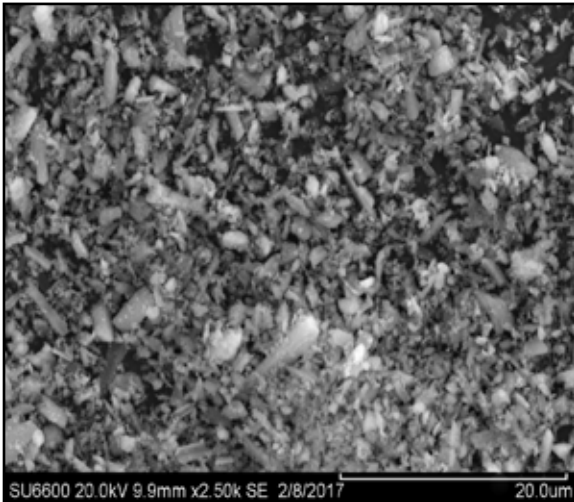
For more information,
phone: (845) 651-3040
email: sales@zircarzirconia.com
website: www.zircarzirconia.com

Properties & Characteristics

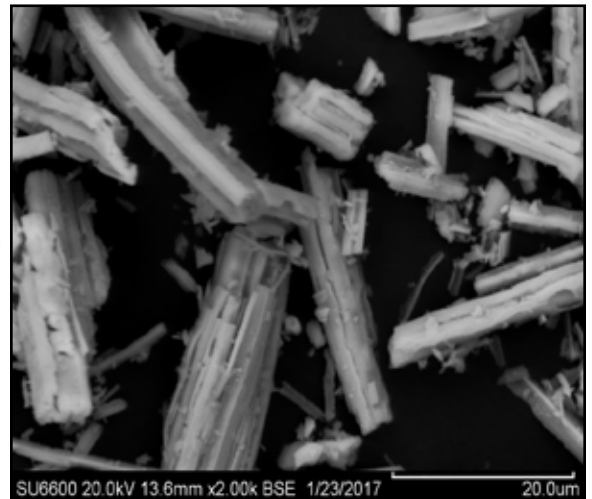
Properties	ZYP-30	ZYP-40	ZYP-55
Loss on Ignition, Wt%	1.8	2.2	3.1
BET Specific Surface Area, meters ² /gram	25-35	35-45	50-60
Composition Wt%			
Oxide	Wt%		
ZrO ₂ *	90		
Y ₂ O ₃	10		
Trace Impurities	<1		

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

Product Micrographs



ZYP-30 is supplied as 1 micron, irregular agglomerates of sub-micron particles.



ZYP-40 is whisker shaped with a wide range of particle length.



ZYP-55 is whisker shaped agglomerates of sub-micron particles.

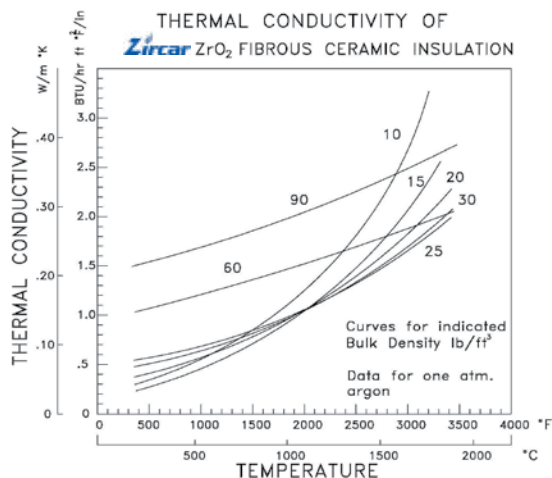


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Facts About Our Zirconium Oxide

- **Zircar** ZrO₂ fibrous ceramics are manufactured using the original ZIRCAR Process which was developed by Bernie H. Hamling (BHH) while at Union Carbide Corp. in Sterling Forest, NY. In 1974 BHH purchased the patents for the process and began ZIRCAR Products, Inc. Over the years the name ZIRCAR became synonymous with high quality advanced fibrous ceramics. In July 2000 Zircar Zirconia, Inc. purchased Bernie's zirconia business and to this day still uses his original process. Although Bernie is no longer with us, we think of him often and are grateful for the opportunity to continue his legacy in the ceramics industry. Thank you BHH.
- At very high temperatures in vacuum and inert or reducing atmospheres, zirconia loses a small amount of oxygen. The reaction results in a color change from white to gray but most other properties remain essentially unchanged and insulation effectiveness is not impaired.
- 1 to 2% hafnium oxide, HfO₂, occurs naturally with zirconium oxide. Hafnia is sometimes referred to as zirconia's twin because of structural similarities.
- Zirconia has the lowest thermal conductivity of any commercial refractory and is one of the most studied ceramic materials in the world.



- Upon heating unstabilized zirconia undergoes disruptive phase changes. At room temperature unstabilized ZrO₂ adopts a monoclinic crystal structure and transitions to tetragonal and cubic at higher temperatures. The volume expansion caused by the cubic to tetragonal to monoclinic transformation induces large stresses which cause cracking on cooling. The addition of yttria eliminates the phase transitions by stabilizing the tetragonal and cubic phases. **Zircar** ZrO₂ is phase stabilized with 10 wt% Y₂O₃.

Applications

FILTRATION MEDIA

Used in industrial ceramic filters (membranes) for filtration, separation, and purification.

THERMAL BARRIER COATINGS

ZYP can be used in thermal barrier coatings for gas turbines and diesel engines.

POLISHING

ZYP can be used as a polishing aid.

OXYGEN SENSORS

ZYP can be used in the fabrication of oxygen sensors.

Standard Product Sizes & Ordering

ZYP is available in the standard weights shown below. Please contact our Sales Department for pricing and availability.

To Place an Order

Call: 845-651-3040

email: sales@zircarzirconia.com

ZYP

Item Type	Size	Item Number
ZYP-30	1 Lb	BH008
	1 Kg	BH005
	35 Kg	BH014
ZYP-40	1 Lb	BH012
	1 Kg	BH011
	35 Kg	BH013
ZYP-55	1 Lb	BH001
	1 Kg	BH006
	35 Kg	BH015



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Product Samples

FREE SAMPLES

Call: 845-651-3040

email: sales@zircarzirconia.com

Product Type	Item #
ZYP-30	SAMPLE-BH
ZYP-40	SAMPLE-BH2
ZYP-55	SAMPLE-BH1

Samples measure 25g



Custom Design Quotations

Contact Us For A Quotation For Your Custom Part

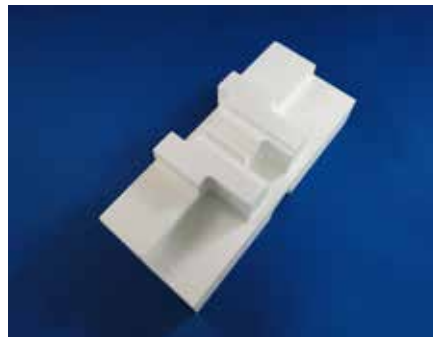
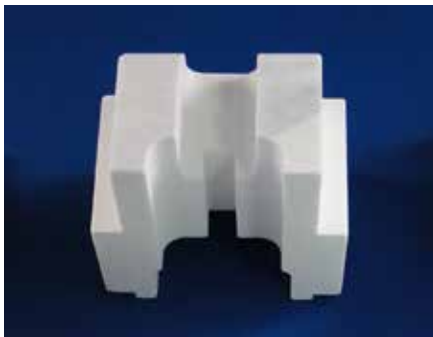
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Zircar manufactures zirconia and alumina fiber insulation boards and machines custom shapes to your design specifications.

Our capabilities include:

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



Zircar welcomes our customers to take advantage of our machining department's expertise for all your custom machining needs.



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