

## ZYTC Zirconia Substrates

The Unrivaled Industry Leader  
of ZrO<sub>2</sub> Insulation

### Three Product Types

- ZYTC-3 Sensor Grade
- ZYTC-5 Industrial Grade
- ZYTC-8 SOFC Grade
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### ZYTC Features

- 3 mol% Yttria Stabilized Sensor Quality
- 5 mol% Yttria Stabilized Industrial Grade Substrates
- 8 mol% Yttria Stabilized SOFC Quality Electrolyses
- Stocked Standards and Custom Orders
- Flatness < 50 Microns
- Gas Tight
- High Abrasion Resistance
- High Corrosion Resistance

### 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



### Gas Tight... Three Grades...

ZYTC Substrates are tightly controlled for sintering micro electronics.

### Product Information

**Zircar** Zirconium Oxide Tape Casts Type ZYTC Substrates are thin, rigid, tape cast structures composed of zirconia stabilized with yttria at targeted stabilization concentrations. ZYTC is our thinnest zirconia material and is ideally suited as a setter for sintering micro electronics, solid oxide fuel cells and thermal management applications under conditions of high temperatures and in varied atmospheres. ZYTC has been high fired and is tightly bonded resulting in a dust free, smooth gas tight surface.

ZYTC is dimensionally stable to 1500 °C. It has exceptional resistance to oxidizing and reducing atmospheres at high temperatures. Zirconia does, however, lose a small amount of oxygen at very high temperatures in vacuum and inert or reducing atmospheres. Although this reaction results in a color change from white to gray, other properties remain essentially unchanged.

**ZYTC-3** is sensor grade.  
**ZYTC-5** is industrial grade.  
**ZYTC-8** is SOFC grade.

For more information,  
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website: [www.zircarzirconia.com](http://www.zircarzirconia.com)

## Properties & Characteristics

Properties (Nominal)	ZYTC 3 mol% Sensor	ZYTC 5 mol% Industrial	ZYTC 8 mol% SOFC
Density, g/cc (PCF)	6.05 (378)	5.85 (365)	5.90 (368)
Maximum Use Temperature, °C (°F) <sup>(1)</sup>	1500 (2732)	1500 (2732)	1500 (2732)
Thermal Conductivity, W/mK	3	1.7	2
Thermal Expansion Coefficient	11 x 10 <sup>-6</sup>	10.5 x 10 <sup>-6</sup>	10.5 x 10 <sup>-6</sup>
Bending Strength, PSI (MPa)	145,000 (1000)	116,030 (800)	38,435 (265)
Ionic Conductivity, S/m	>6	n/a	>10
Gas Permeability	nil	nil	nil

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

## Applications

### GAS FLOW SENSORS

ZYTC-3 Sensor Grade substrates are suitable for thin film gas flow sensors.

### PASSIVE ELECTRONIC COMPONENTS

ZYTC-5 Industrial Grade substrates are suitable for the development of passive electronic components.

### RESEARCH

ZYTC-8 SOFC Grade substrates high conductivity are suitable for research on subtle differences amongst high temperature SOFC anode and cathode materials.

## Product Samples



Inquire about  
**FREE SAMPLES**

Call: 845-651-3040

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

## Custom Design Quotations

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

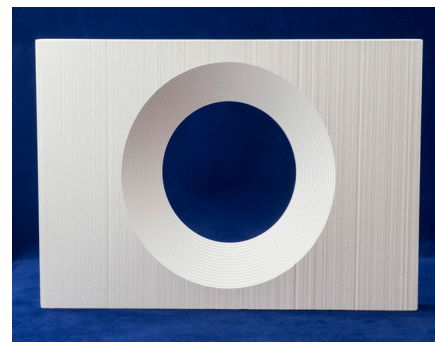
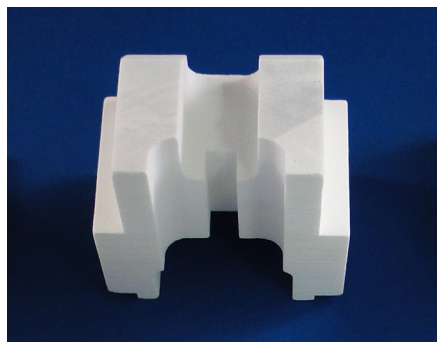
Call: 845-651-3040

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