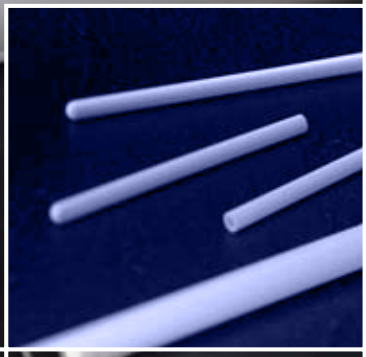
CoorsTek
Amazing Solutions.®



IONIC CONDUCTORS FOR O_2 SENSORS

www.coorstek.com

SUPERIOR STRENGTH, ACCURACY AND RESISTANCE FOR HIGH-PERFORMANCE OXYGEN SENSORS

CoorsTek provides high-performance ceramic components for exceptionally durable oxygen sensors. We offer advanced electrolyte cells from bare zirconia to platinum metallized – with or without platinum lead attachment.

NEW! CoorsTek DuraSense™ Hybrid Ceramic Material
Specifically designed to work in applications where oxygen ionic conductivity, thermal toughness and thermal shock resistance are required, DuraSense ceramic is perfect for oxygen sensors when your application demands:

- High output (>98% of theoretical by the Nernst equation)
- Low offset (<0.5mV at 750°C)
- Low internal resistance (<25 ohms at 750°C)
- Rapid response times

CoorsTek DuraSense™ is the next generation of superior engineered ceramic material for aggressive environments, with exceptional properties designed to offer:

- Lower thermal expansion
- Better thermal conductivity
- Higher strength
- Higher thermal shock resistance
- Better toughness

DuraSense hybrid ceramic offers higher stress and higher thermal shock resistance when compared to traditional ionic conductive materials.

Technical Ceramics Specialists Since 1910
Established almost a century ago, CoorsTek is one of the largest technical ceramics manufacturers in the world and provides application-specific materials for virtually every industry. Let our experts help you!

For more information, please contact us at +1.303.277.4389 or durasense@coorstek.com.

OpX™
CoorsTek exclusive OpX manufacturing and quality system

Quick-Turn Prototyping and Manufacturing

Material Comparison Chart

Properties	Units	Test	ZDY (Yttria Fully Stabilized Zirconia)	DuraSense™ Ceramic (Alumina Toughened Zirconia)
Physical Properties				
Density	grams/cc	ASTM C20	5.60	4.90
Color			Ivory	White
Water Absorption	%	ASTM-373	0	0
Permeability	–	–	Gas tight	Gas tight
Mechanical Properties				
Flexural Strength (MOR)	MPa	ASTM F417	207	350
Fracture Toughness	MPa?m1/2	Notched Beam	3	3.5
Hardness	Newtons	Rockwell 45N	75	85
Thermal Properties				
Thermal Conductivity (20° C)	W/m°K	ASTM C408	2.2	23
Coefficient of Thermal Expansion (25 to 1000°C)	10-6/°C	ASTM C372	10.5	8.3
Thermal Shock (Note 1)	°C	ΔTc	200	500
Maximum Use Temperature	°C	No Load Cond.	2400	1500
General Characteristics			Oxygen ionic conductor for high-stress and high-thermal-shock environments	Oxygen ionic conductor for extreme-stress and extreme-thermal-shock environments

Note 1: Thermal Shock Resistance - Tests are run by quenching tubular samples into water from various elevated temperatures. The change in temperature where a sharp decrease in flexural strength is observed is listed as ΔTc.

Note 2: Engineering data is representative. Property values vary somewhat with method of manufacture, size, and shape of part. Any suggested applications are not made as a representation or warranty that the material will ultimately be suitable for such applications. The customer is ultimately responsible for all design and material suitability decisions. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek assumes legal responsibility. Any warranty or representation for which CoorsTek is responsible shall be subject to a separately negotiated agreement.

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