



Superior Can Tooling Components

The Leading Manufacturer of Ceramic Can Tooling Materials

CoorsTek is internationally recognized as a leader in the development and use of ceramic technology. Manufactured in state-of-the-art facilities, our advanced ceramic can tooling components increase yields, improve quality, and extend machine life in can making plants worldwide.

Benefits of CoorsTek Ceramics for 2-Piece and 3-Piece Canning Applications

CoorsTek ceramics offer high hardness, corrosion resistance, and thermal management to provide superior performance and life in a variety of tooling applications including:

- Decorator mandrels
- Extractor rings/Domers
- Redraw sleeves
- Spin flangers
- Diablo rolls
- Necking dies and knockouts
- Stripper fingers
- Seaming rolls
- Z-Bars

Ceramic Necker Tooling



CoorsTek's Hot Isostatically Pressed (HIPped) zirconia materials are the industry standard for ceramic necking dies and knockouts, outperforming tungsten carbide in several ways. The sub-micron grain size enables an excellent polish for low-friction, voiding wrinkling,

puckering, and splitting flanges. HIPped Zirconia has no surface voids to collect buildup, with no binder phase that can be leached out to create voids in service. Residues that appear after long run periods can be easily cleaned with a mild caustic, reducing maintenance costs.

Ceramic Stripper Tooling

CoorsTek ceramic fingers have exceptional wear resistance, offering superior life as compared to carbides. The ceramic fingers can be reground, further extending the service life. Smoother surfaces and lower friction provide a "velvet touch" that will not mark can bodies. Ceramic fingers are also low maintenance; any aluminum build up can be removed with a mild caustic or light diamond polishing.

Spin Flangers

CoorsTek ceramic spin flangers provide dramatically reduced "angel hair" production (white lacquer stripped from the inside of the can).

Z-Bars

Z-Bars generate the correct over-lap of the sheet metal at the weld. As an electrical insulator, CoorsTek engineered ceramics stop any current leakage – enabling the weld control system to be more stable.



Diablo Rolls

Diablo rolls are used to hold the shape of the can during welding. Zirconia is used for its high electrical resistivity, so the roll is not heated up by eddy currents induced by the large magnetic field generated by the welding process.

Ceramic Printer Mandrels



Developed and patented by CoorsTek, our ceramic printer mandrels are extremely hard and wear resistant, providing service life in excess of a decade. The highly polished, low-friction surface provides faster loading, and the low thermal expansion coefficient offers dimensional stability over wide range of plant temperatures.

Property	Units	Zirconia Toughened Alumina			MgO Partially Stabilized Zirconia		Sintered Y ₂ O ₃ Partially Stabilized Zirconia		HIPped Y ₂ O ₃ Partially Stabilized Zirconia		
		ZTA	AZ-67	AZ-93	Dura-Z™	Technox® 500	YZTP	Technox® 2000	YZTP	YZ 110 HS	Technox® 3000
Density	g/cm ³	4.05	4.4	4.8	5.72	5.6	6.02	6.02	6.07	6.07	6.07
Color	-	WHITE	GRAY	GRAY	WHITE	YELLOW	WHITE	WHITE	GRAY	OLIVE-BROWN	OLIVE
Flexural Strength (MOR), 20° C	MPa (ksi)	450 (65)	1000 (145)	1200 (174)	758 (110)	545 (79)	1240 (180)	1000 (145)	1720 (250)	1500 (218)	1400 (203)
Elastic Modulus, 20° C	GPa (msi)	360 (52)	340 (49)	295 (43)	200 (29)	200 (29)	210 (30)	210 (30)	210 (30)	210 (30)	210 (30)
Compressive Strength, 20° C	MPa (ksi)	2900 (421)	-	-	1750 (254)	1700 (247)	2500 (363)	2000 (290)	2500 (363)	2300 (334)	2000 (290)
Hardness – Rockwell (45N)		85	84	83	77	77	81	81	81	81	81
Hardness – Vickers (HV 1.0)	kg/mm ²	1475	1430	1390	1200	1200	1300	1300	1300	1300	1300
Fracture Toughness, K(I c)	MPa m ^{1/2}	5.0 - 6.0	7.0	7.0	11.0	6.0	13.0	10.0	13.0	8.5	10.0
Thermal Conductivity	W/mK	27.0	20.0	12.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Coefficient of Thermal Expansion, 25-1000° C	1 X 10 ⁻⁶ /°C	8.3	8.5	9.0	10.2	10.2	10.3	10.3	10.3	10.3	10.3
Volume Resistivity, 25° C	ohm-cm	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴

Charts intended to illustrate typical properties. Property values vary with method of manufacture, size, and shape of part. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek assumes legal responsibility. CoorsTek and Technox are registered trademarks of CoorsTek, Inc. Dura-Z is a trademark of CoorsTek, Inc.



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