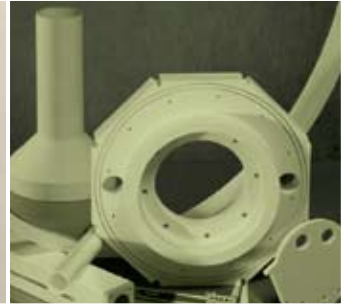


COORSTEK
Amazing Solutions.®



ADVANCED ALUMINA

ADVANCED ALUMINA MATERIALS AND MANUFACTURING PROCESSES

CoorsTek provides state-of-the-art materials manufactured by the most cost-effective processes. CoorsTek maintains efficient, large-scale manufacturing facilities that support quick-turn prototype development and high-volume production.

Wide Variety of Manufacturing Options

- Injection molding
- Roll compacting
- Extruding
- Co-firing
- Isostatic pressing
- Dry pressing
- Hot pressing
- Tape casting
- Slip casting

Advanced Finishing Services

- Engineering design and support
- Precision grinding and lapping
- Laser machining
- Metallizing
- Ceramic-to-metal brazing
- Specialized coatings
- Threaded components
- Precision motion components
- Complex cleanroom assemblies

CoorsTek is uniquely capable of providing advanced materials and manufacturing technologies. Call our specialists at 303-271-7000 for help selecting the best materials and design for manufacturability.

Property	Units	Test	AD-85	AD-90	AD-94	AD-96	ADO-96	FG-995	AD-995	AD-996	AD-998	PlasmaPure™ AD-998	PlasmaPure-UC™
			Nom. 85%	Nom. 90%	Nom. 94%	Nom. 96%	Nom. 96%	Nom. 98.5%	Nom. 99.5%	Nom. 99.6%	Nom. 99.8%	Min. 99.8%	Min. 99.9%
Density	gm/cc	ASTM-C 20	3.42	3.60	3.70	3.72	3.81	3.80	3.90	3.90	3.92	3.93	3.94
Crystal Size, Average	MICRONS	THIN-SECTION	6.0	4.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0
Color	*	*	White	White	White	White	Brown	White	Ivory	Ivory	Ivory	Ivory	Ivory
Flexural Strength (MOR), 20° C	MPa (psi X 10 ³)	ASTM-F417	296 (43)	338 (49)	352 (51)	358 (52)	385 (56)	375 (54)	379 (55)	379 (55)	375 (54)	390 (58)	414 (60)
Elastic Modulus, 20° C	GPa (psi X 10 ³)	ASTM-C848	221 (32)	276 (40)	303 (44)	303 (44)	354 (50)	350 (51)	370 (54)	370 (54)	370 (54)	370 (54)	386 (56)
Poisson's Ratio, 20° C	*	ASTM-C848	0.22	0.22	0.21	0.21	0.26	0.22	0.22	0.22	0.22	0.22	0.24
Compressive Strength, 20° C	MPa (psi X 10 ³)	ASTM-C773	1930 (280)	2482 (360)	2103 (305)	2068 (300)	2450 (375)	2500 (363)	2600 (377)	2600 (377)	2500 (363)	2700 (390)	2930 (425)
Hardness	GPa	Rockwell 45N	73	75	78	78	81	82	83	83	83	83	85
Fracture Toughness, K1c	MPa m ^{1/2}	Notched Beam	3 - 4	3 - 4	4 - 5	4 - 5	3 - 4	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
Thermal Conductivity, 20° C	W/m °K	ASTM-C408	16.0	16.7	22.4	24.7	24.7	27.5	30.0	30.0	30.0	30.0	31.0
CTE, 25-1000° C	1X 10 ⁻⁶ /°C	ASTM-C372	7.2	8.1	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Thermal Shock Resistance, ΔTc	°C	NOTE 3	300	250	250	250	250	200	200	200	200	200	200
Maximum Use Temperature	°C	NO-LOAD COND.	1400	1500	1700	1700	1700	1700	1750	1750	1750	1750	1750
Volume Resistivity, 25° C	Ohm-cm	ASTM-D1829	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	*	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴
Volume Resistivity, 500° C	Ohm-cm	ASTM-D1829	4 x 10 ⁹	4 x 10 ⁹	4 x 10 ⁹	4 x 10 ⁹	*	2 x 10 ¹⁰	2 x 10 ¹⁰	2 x 10 ¹⁰	2 x 10 ¹⁰	1 x 10 ¹¹	3.3 x 10 ¹²
Volume Resistivity, 1000° C	Ohm-cm	ASTM-D1829	*	5 x 10 ⁹	5 x 10 ⁹	1 x 10 ⁹	*	2 x 10 ⁹	2 x 10 ⁹	2 x 10 ⁹	2 x 10 ⁹	3 x 10 ⁹	1.1 x 10 ⁷

*Data not available

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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