

MECHANICAL PROPERTIES

PROPERTY	UNITS	AMALOX 68 99.8% ALUMINA CERAMIC	AMALOX 87 99.95% ALUMINA CERAMIC	AMZIROX 86 ZIRCONIA (Y-TZP) CERAMIC	ZTA 96 ZIRCONIA TOUGHENED ALUMINA CERAMIC	MACOR MACHINABLE GLASS CERAMIC
DENSITY	gm/cm ³	3.9	3.93	6.01	4.1	2.5
GRAIN SIZE	microns	5	3	0.5	2	---
WATER ABSORPTION	---	0	0	0	0	0
GAS PERMEABILITY	---	0	0	0	0	0
COLOR	---	WHITE	WHITE	WHITE	WHITE	WHITE
ELASTIC MODULUS	GPa (psi x 10 ⁶)	393 (57)	393 (57)	204 (30)	310 (45)	67 (10)
FLEXURAL STRENGTH	MPa (psi x 10 ³)	382 (55)	482 (70)	1000 (145)	760 (110)	94 (14)
COMPRESSIVE STRENGTH	MPa (psi x 10 ³)	2500 (363)	2600 (377)	2500 (363)	2900 (421)	345 (50)
FRACTURE TOUGHNESS	Mpa m ^{0.5}	5	5	13	7	2
POISSON'S RATIO	---	0.22	0.22	0.23	0.23	0.29
HARDNESS	Hv	2017	2000	1290	1750	250

THERMAL AND ELECTRICAL PROPERTIES

PROPERTY	UNITS	AMALOX 68 99.8% ALUMINA CERAMIC	AMALOX 87 99.95% ALUMINA CERAMIC	AMZIROX 86 ZIRCONIA (Y-TZP) CERAMIC	ZTA 96 ZIRCONIA TOUGHENED ALUMINA CERAMIC	MACOR MACHINABLE GLASS CERAMIC
MAX. USE TEMPERATURE	°C (°F)	1700 (3092)	1700 (3092)	1500 (2732)	1500 (2732)	1000 (1832)
THERMAL CONDUCTIVITY	W/m ² K (Btu-in/hr-ft ² ·°F)	37.4 (260.0)	37.4 (260.0)	2.1 (15.0)	21.6 (150.0)	1.4 (10.1)
THERMAL EXPANSION	10 ⁻⁶ /°C (10 ⁻⁶ /°F)	8.2 (4.6)	8.2 (4.6)	10.3 (5.8)	8.1 (4.5)	9.3 (5.2)
SPECIFIC HEAT	J/kg·°K (Btu/lb·°F)	875 (0.20)	875 (0.20)	400 (0.09)	880 (0.21)	790 (0.19)
DIELECTRIC STRENGTH	ac V/mil	220	220	230	230	785
DIELECTRIC CONSTANT	-	9.8	9.8	29.0	10.6	6.0
LOSS TANGENT	-	0.0001	0.0001	0.0001	0.0005	0.0047
VOLUME RESISTIVITY	ohm-cm	>10 ¹⁴	>10 ¹⁴	>10 ¹³	>10 ¹⁴	>10 ¹⁶

ASTRO MET, INC
 9974 SPRINGFIELD PIKE
 CINCINNATI, OH 45215
 (PH) 513-77-1242
info@astromet.com
www.astromet.com