High Temperature Ceramic Adhesives
1560°F / 850°C to 3200°F / 1760°C

These are unique high temperature inorganic ceramic adhesive formulations for bonding and sealing ceramics, metals, quartz, graphite, carbons, textiles and composite materials and structures. High thermal and electrical resistance.

High Temperature Ceramic Adhesives					
Part Number	**Filler**	**Feature**	**Bonding**	**Use**	**Price per Pint***
UCA-1509-1	Alumina	High Fired Strength	C-C	Dense Ceramics	$ 184.21
UCA-1656-1	Alumina	Adhesion to Metal	C-C; C-M	Low CTE Metals, SOFC's	$ 184.21
UCA-1707-1	Alumina	Set at Room Temperature. Good Filler	C-C; C-M	Probes, Sensors	$ 184.21
UCA-1800-1	Alumina	Ceramic Fiber Reinforced	C-C	Refractory Repair	$ 184.21
UCA-2013-1	Alumina	High Adhesion	C-C; C-M; M-M	Textiles, Threadlocking	$ 184.21
UCA-2505-1	Alumina	High Strength. Good filler	C-C; C-M	Halogen Lamps	$ 184.21
UCA-2505 MB-2	Alumina	High Strength. Good filler	C-C; C-M	Halogen Lamps	$ 184.21
UCA-2439-1	Alumina	Fiber reinforced sealer	C-C; C-M	Tundish Nozzles	$ 184.21
UCA-2595-1	Aluminum Nitride	High Thermal Conductivity	C-C; C-M	Probes, Sensors	$ 269.87
UCA-2004-1	Alumina-Silica	Set at Room Temperature. Good Filler	C-C; C-Met	Oxygen Sensors	$ 184.21
UCA-2031-1	Alumina-Silica	Set at Room Temperature. Good Filler	C-C; C-Met	Induction Coils	$ 184.21
UCA-2070-1	Boron Nitride	Good Fired Strength	C-C	Boron Nitride	$ 184.21
UCA-1653RN-1	Graphite	High Adhesive Strength	Graphite, Carbon	Structures, Molds	$ 219.68
UCA-2007-1	Graphite	Ceramic Fiber Reinforced	Graphite, Carbon	Structures, Molds	$ 184.21
UCA-1713-2	Magnesium Oxide	Dielectric, High Strength	C-M; M-M	Heaters, Sensors	$ 184.21
UCA-1854-1	Silica	Low CTE, Good Strength	C-C; Quartz	Tubes, Vessels, Sensors	$ 184.21
UCA-1548-1	Zirconia	Dielecctric, Moisture Resistant	C-C; C-M; M-M	Thermocouples	$ 184.21
UCA-2055-1	Zirconia	Bonds Plated Metals to Ceramic	C-M	Heaters, Ignitors, Gasketing	$ 184.21
UCA-2505-1	Zirconia	Fiber reinforced, sets room temperature	C-C; C-M	Halogen Lamps	$ 184.21
UCA-2655-1	Zirconia	Bonds and coats Zirconia, High Strength	C-C	Zirconia, SOFC's	$ 184.21
UCA-2670-1	Silicon Carbide	Bonds SiC and Graphite Components	C-C, Graphite	High Vacuum Fixtures	$ 184.21

Bonding: C-C is Ceramic-to-Ceramic; C-M is Ceramic-to-Metal; M-M is Metal-to-Metal. Last digit in the part number indicates number of components: 1 is a one part adhesive; 2 is a two part adhesive. Most 1 part adhesives are delivered with a six month shelf life.

* Other sizes generally available are Quart, Gallon and 5 Gallon. For Quart size, price is 1.8 x Pint price. For Gallon size, price is 3.3 x Pint price. Some items incur higher shipping charges in sizes of 1 gallon and above due to classification as hazardous (Not classified as hazardous in smaller sizes).

Easy to use one and two component systems. Air dry at ambient temperature for 1-2 hours, followed by a 200°F to 700°F cure.

HIGH TEMPERATURE CERAMIC ADHESIVE & PASTE PROPERTIES

Product No.	1509	1656	1707	1800	2013	2439	2505M ⑥	2004	2031	2595	2070	1653RN ①	2007	1713	1854	2670	1548	2055	2505	2655
Trade Name	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax	CerMax
Major Constituent	Alumina							Alumina-Silica		Aluminum Nitride ④	Boron Nitride	Graphite		Magnesium Oxide	Silica	Silicon Carbide	Zirconia			
Maximum Temperature °F (°C)	3000 (1650)	3000 (1650)	3000 (1650)	2500 (1371)	3200 (1760)	3000 (1650)	3000 (1650)	2500 (1371)	2400 (1316)	3000 (1650)	1560 (850) ③ 2700 (1482)	5400 (2985)	2500	3200 (1760)	3000 (1650)	2500 (1371)	3200 (1760)	2500 (1371)	3000 (1650)	3200
CTE, in/in/°F. x 10-6 (°C)	4.0 (7.2)	4.3 (7.7)	4.2 (7.6)	4.2 (7.6)	4.1 (7.4)	4.0 (7.2)	4.0 (7.2)	4.0 (7.2)	4.1 (7.4)	1.5 (2.7)	2.0 (3.6)	4.1 (7.4)	4.2 (7.6)	7.0 (12.6)	33 (.59)	2.4 (4.4)	4.1 (7.4)	4.5 (8.1)	4.0 (7.2)	4.0 (7.2)
Volume Resistivity, ohm-cm @ RT (@ 1000 °F)	10^9 (10^5)	10^9 (10^4)	10^9 (10^5)	10^9 (10^5)	10^8 (10^4)	10^9 (10^5)	10^9 (10^5)	10^8 (10^4)	10^9 (10^5)	10^{15} (10^{10})	10^{15} (10^{10})	NA (NA)	NA (NA)	10^9 (10^5)	10^9 (10^5)	NA	10^8 (10^4)	10^9 (10^5)	10^9 (10^5)	10^8 (10^4)
Dielectric Strength, volts per mil @ RT (@ 1000 °F)	253 (240)	250 (80)	256 (100)	200 (80)	250 (97)	250 (80)	245 (95)	245 (95)	200 (100)	500 (300)	500 (300)	NA (NA)	NA (NA)	255 (100)	200 (180)	NA	250 (80)	200 (150)	200 (100)	250 (80)
Torque Strength, ft-lbs ②	5.6	6.7	6.0	8.3	24.0	18.5	8.5	10.6	6.3	8.3	NA	9.5	2.1	21.6	5.2	10.5	8.6	9.0	7.5	8.0
Moisture Resistance ⑤	Good	Excellent	Excellent	Good	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent	Good	Good	Excellent	Good	Good
Alkali Resistance ⑤	Fair	Good	Good	Good	Excellent	Excellent	Excellent	Excellent	Good	Good	Good	Good	Good	Good	Good	Good	Excellent	Good	Good	Good
Acid Resistance ⑤	Excellent	Good	Excellent	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good
Handling **No. Components** ①	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
Handling **Mix Ratio,** powder/liquid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.5:1	N/A	N/A	N/A	N/A	N/A	N/A
Handling **Viscosity,** cP	43,000	62,000	Paste	Paste	84,000	Paste	35,000	Paste	43,000	62,000	Paste	Paste	Paste	60,000	34,000	49,000	83,000	75,000	Paste	Paste
Handling **Specific Gravity,** gms/cc	2.50	2.07	2.30	2.16	2.24	2.18	2.41	2.09	2.17	2.01	1.40	1.56	1.58	1.50	1.60	2.18	2.24	1.85	2.41	2.99
Curing **Air Set,** hours	<1	1-4	1-4	2-4	1-4	4	2	1	1-4	1-4	1-4	1-4	1-4	1-4	1-4	<1	1-4	2-3	<1	<1
Curing **Heat Cure,** °F, hrs	200, 2 500, 2 700, 2	200, 2 500, 2	200, 2	200, 3	200, 2	200, 3 or 24/RT	200, 2	200, 1-5	200, 2	200, 2	200, 2 500, 2 700, 2	265, 4 500, 2	200, 2	200, 2	200, 2 500, 2 700, 2	200, 2 500, 2 700, 2	200, 2 500, 2 700, 2	200, 3	200, 2	500, 2
Color	White	White	White	White	White	White	White	White	Off White	Gray	White	Black	Black	Beige	Light Gray	Gray	Tan	Tan	Tan	Tan
Shelf Life, Months	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Storage, °F	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40	40-90	40-90	40-90	40-90	40-90	40-90	40-90	40-90

CERAMIC ADHESIVE SELECTOR CHART

	MATERIAL	CTE X 10^{-6} in/in/ °F (°C)	1509	1548	1653RN	1656	1707	1713	1800	1854	2004	2007	2013	2031	2055	2070	2439	2505	2505M	2595	2655	2670
CERAMICS	ALUMINA (96%)	4.4 (7.9)	•	X		X	X	X	•		•		•		X		•		•			
	ALUMINUM NITRIDE	1.5 (2.7)					•			X	X					X	•	X	X	•		
	BERYLLIA (95%)	4.1 (7.4)	•	X		X	X	X					•				X		X			
	BORON CARBIDE	2.6 (4.6)					•			X	•											
	BORON NITRIDE	4.2 (3.8)	•			X							•			•	X		X			
	CERAMIC TEXTILES	—	•										•		X							
	CORDIERITE	1.1 (1.9)								•					X	X	X					
	GLASS (Borosilicate)	1.8 (3.2)	•							•					X	•		•				
	GLASS BONDED MICA	5.8 (10.4)						X							X		X	X	X			
	GRAPHITE	4.3 (7.7)	X	X	•							•										X
	MACOR®	5.2 (9.4)					X	X			X				X		X	X	X			
	MULLITE	3.0 (5.4)	•				X								X							
	QUARTZ	0.3 (.56)	X				X			•						X		•				
	SAPPHIRE	4.2 (7.6)	•						•		X		•									
	SILICON CARBIDE	2.9 (5.2)	•													X				X		•
	SILICON NITRIDE	1.8 (3.2)								X						X				X		
	STEATITE	4.0 (7.2)	•	X		X	X								X		X	X	X			
	ZIRCONIA			•											•			•			•	
	ZIRCONIA SILICATE			•											•			•			•	
	REFRACTORIES	—					•		•		•		•				•	•	X			
METALS	ALUMINUM	15.0 (27.0)						•							X			X				
	BRASS	10.2 (18.4)						•						•	X			X				
	CAST IRON	5.9 (10.6)		X		X	X	•					•		X							
	COPPER	9.3 (16.7)						•						•								
	INCONEL	6.4 (11.5)		X		X	•	X														
	MOLYBDENUM	2.9 (5.2)		X		X	•			X										X		
	NICKEL	7.2 (12.9)		X		X	X	•			X				X		X		X			
	NICKEL-IRON	2.6 (4.7)		X		•	X	X			X						X		X			
	PLATINUM	4.9 (8.8)	X													X						
	SILICON	1.6 (2.9)	X	•		X	X									X						
	SILVER	10.6 (19.1)						•														
	S/S (300 SERIES)	9.6 (17.3)		X		X	X	•			X		•		X		X					
	S/S (400 SERIES)	6.2 (16.6)						•					•		X							
	STEEL (1010)	6.5 (11.7)		X		X	X	•			X		X		X		X	X	X			
	TANTALUM	3.9 (7.0)	X	X		X	•	X			•	X					X					
	TITANIUM	5.8 (10.4)					X	•			X											
	TUNGSTEN	2.5 (4.5)		X		X	•			X	X					X	X			X		

• Preferred Product For This Application
X Applicable Product For This Application