

COTRONICS RESBOND HIGH TEMP. ADHESIVE PROPERTIES

The following criteria is useful in selecting the optimum ceramic adhesive.
 These criteria are offered as a general guide and should be followed in the approximate order listed.
 A final manufacturing selection is then based on the results obtained.
 If several adhesives are indicated for a specific application, we would recommend a comparative evaluation be made.

1. Choose maximum temperature required.
2. Match thermal expansion between materials to be bonded.
3. Select the required electrical properties.
4. Select the bond strength requirements.
5. Check for porous surfaces (is a primer or pre-coat required).
6. Check moisture or humidity requirements.
7. Choose from the following manufacturing requirements:
 - A) One component, cures by evaporation.
 - B) Two component, chemical set.
 - C) Viscosity and Dispensability.
 - D) Cure time for handling strength.
 - E) Production Requirements.

Composition	Alumina			Zirconia	Zircon	Mica	Magnesia		Silica		Graphite	Metallic					
	901	903HP	908				920	989	904	940		907	906	919	905	940LE	7030
Resbond™	Fiber Base	Hi-Bond Strength	Moisture Proof	Therm. Cond.	General Purpose	Ultra Temp.	Fast Set	Industrial Strength	High Expan.	High Resist.	Low Expan.	Fast Set	High Strength	Graphite	Alum. Metal	Nickel Metal	Stainless Steel
Service Temp (°F)	3,000	3,000	3,000	3,000	3,000	4,000	2,000	2,300	3,000	2,800	2,500	2,500	1,800	5,400	1,200	2,000	2,000
Base	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃	ZrO ₂	Zircon	MICA	MgO	MgO	SiO ₂	SiO ₂	SiO ₂	Carbon	Al	Nickel	316SS
Comprehensive Strength (psi)	1,200	7,000	3,000	4,500	3,000	6,000	4,000	3,500	3,000	4,500	3,200	3,500	5,000	3,000	4,000	5,000	4,500
Flexural Strength (psi)	600	3,500	1,100	450	1,100	3,000	1,800	1,250	1,500	450	2,100	2,100	1,450	1,500	3,000	3,000	2,500
Thermal Expansion (10 ⁻⁶ / °F)	4	4	4.5	4.5	4.5	4.1	4.5	4.5	7	2.6	0.3	0.4	7.5	4.1	10	4	10
Thermal Conductivity (BTU - in / Hr. °F FT ²)	2	40	15	15	15	15	8	6	40	4	10	5	8.3	60	44	14	10
Dielectric Strength (volts / mil)	200	250	200	270	200	250	125	300	250	270	200	125	100	COND.	COND.	COND.	COND.
Volume Resistivity (ohm-cm)	10 ¹²	10 ¹⁰	10 ¹⁰	10 ¹¹	10 ⁸	10 ⁸	10 ⁸	10 ⁹	10 ⁹	10 ¹¹	10 ¹¹	10 ⁸	10 ⁹	COND.	COND.	COND.	COND.
Components	1	1	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2
Mix Ratio	N/A	N/A	100/33	100/14	N/A	N/A	100/28	N/A	100/42	100/13	100/60	100/45	100/20	100/35	100/60	100/120	100/25
Consistency	Paint	Paint	Paste	Paste	Paint	Paint	Paste	Paste	Paste	Paste	Paste	Paste	Paste	Paste	Paste	Paste	Paste
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