



## HIGH PERFORMANCE EPOXIES

Technical Bulletin A7

Aremco offers an impressive selection of high performance epoxies for specialty bonding and potting applications to 600 °F. These products can be applied to a myriad of substrates, offering exceptional chemical, electrical and mechanical properties.

### PRODUCT HIGHLIGHTS

#### Ultra High Temperature

- 526N** Clear-Amber, 1:1 System for Tough Bonding Applications.
- 570** Single-Part Contact Adhesive, Excellent Flexibility.
- 805** Aluminum-Filled, Low Shrinkage, High Thermal Conductivity, For Bonding & Molding.
- 2330** Single-Part, Heat Curable, Silicone Elastomer Adhesive.
- 2335** Ceramic-Filled, Low Expansion, High Lap-Shear Strength & Chemical Resistance, Low Outgassing.

#### High Temperature, Special Purpose

- 568** Aluminum-Filled, 1:1, High Bond Strength, Excellent Thermal Conductivity.
- 631** Clear-Amber, 1:1, High Bond Strength & Corrosion Resistance.
- 807** 10 Minute Set, Non-Sagging, 1:1, Excellent Electrical & Mechanical Properties.
- 820** Clear, 1:1, 45-Minute Cure System with Good Flexibility.
- 2150** Fast-Setting, Ceramic-Filled, High Vibration Resistance & Bond Strength.

#### High Temperature Potting Compounds

- 2315** High Temperature Resistance, Thermally Conductive, Low Viscosity.
- 2315X** Similar to 2315 Providing Improved Crack Resistance & Bond Strength.
- 2318** High Temperature, Low Viscosity, Room Temperature Cure.
- 2340** High Temperature, Low Viscosity, Low Expansion, High Glass Transition Temperature & Chemical Resistance.

#### High Temperature, Maintenance & Repair

- 657** Stainless-Steel Filled, 1:1, High Bond Strength & Corrosion Resistance.
- 2200** Glass Fiber & Kevlar-Reinforced, Epoxy-Novolac, High Strength & Excellent Abrasion & Corrosion Resistance.
- 2210** Aluminum & Ceramic-Filled, Vibration & Impact Resistant; For Repairing Aluminum Mold & Wear Surfaces.
- 2220** Ceramic-Filled, High Chemical Resistance, Machinable; For Repairing Deeply Corroded Parts.

#### Ultra High Bond Strength

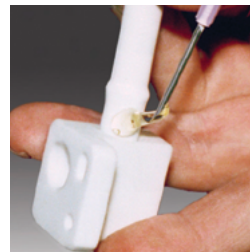
- 2300** Unfilled, Low Viscosity, Rubberized Epoxy, Exceptional Bond Strength & Chemical Resistance.
- 2310** Ceramic-Filled, 1:1, High Lap Shear & Peel Strength, Resistant to Extreme Shock, Vibration & Flexing; Ideal for Autoclave & Cryogenics.
- 2320** Toughened, Unfilled, Fast-Setting, BPA Free, 2:1, High Peel & Shear Strength.



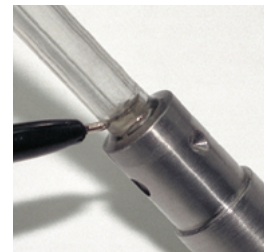
Aremco-Bond™ 570 bonds ceramic to copper nozzle.



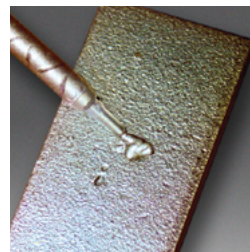
Aremco-Bond™ 568 bonds copper coil.



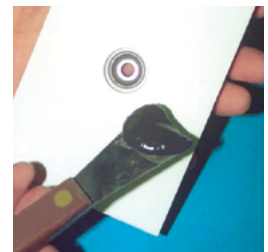
Aremco-Bond™ 526N bonds alumina to alumina ceramic.



Aremco-Bond™ 631 bonds sapphire tube to stainless steel.



Aremco-Bond™ 657-FST repairs defects in cast iron.



Aremco-Bond™ 2150 bonds ceramic wear tile.



## HIGH PERFORMANCE EPOXIES PROPERTY CHART

Category	Ultra High Temperature					High Temperature, Special Purpose					High Temperature Potting Compounds				High Temperature, Maintenance & Repair				Ultra High Bond Strength			
Product Number	526N <sup>5,6</sup>	570	805	2330	2335	568	631 <sup>5,6</sup>	807	820	2150	2315 <sup>5</sup>	2315X	2318	2340	657	2200	2210	2220	2300	2310	2320	
Handling & Curing	Mix Ratio by Weight, resin:hardener <sup>1</sup>	1:1	NA	100:12	NA	100:5.5	1:1	1:1	1:1	100:13	100:25	100:25	100:12	100:10	1:1	1:1	100:11	100:28	100:10	1:1	2:1	
	Specific Gravity, g/cc @ 25 °C	1.23	0.95	1.66	1.43	1.80	0.85	1.12	1.39	1.15	1.50	1.95	1.95	1.58	1.76	1.65	1.60	1.80	1.70	1.10	1.35	1.10
	Mixed Viscosity, cP @ 25 °C	8,500	35,000	11,000	38,000	Paste	Paste	25,000	75,000	12,000	Paste	3,000	4,000	16,000	39,000	Paste	Paste	Paste	Paste	5,000	45,000	35,000
	Pot Life, 100 gm mass @ 25 °C, hrs	2.50	NA	≤1.0	NA	1.50	4.00	4.00	0.25	0.25	> 8	2.00	> 8	0.70	> 4	4.00	0.70	1.00	1.00	0.75	0.75	1.00
	Recommended Cure, hr/°F	2/200 + 2/325	.3/180 + .5/350	24/100 + 2/200	1/200	2/200 + 2/350	2/200	2/200	1/RT	.75/RT	24/RT	2/160 + 2/300	2/160 + 2/300	4/RT + 2/200	2/175 + 2/300	2/200	24-48/RT	24-48/RT	12-24/RT	2/150	2/150	24-48/RT
	Alternate Cure, hr/°F	3-4/300	24/RT + .5/350	24/RT + 2/200	.75/300 or .50/400 F	8/300	24-48/RT	24-48/RT	—	—	1/RT + 4/175	6/250	4/220	24-48/RT	6/250	24-48/RT	4/175	2/200	2/200	48/RT	48/RT	2/200
Cured Properties	Temperature Resistance, °F	-76 / +572	-76 / +600	-103 / +572	-76 / +572	-67 / +572	-85 / +400	-85 / +400	-67 / +266	-58 / +392	-67 / +400	-67 / +365	-67 / +365	-67 / +248	-40 / +430	-85 / +400	-67 / +400	-67 / +400	-67 / +400	-67 / +350	-67 / +325	-67 / +250
	Temperature Resistance, °C	-60 / +300	-60 / +316	-75 / +300	-60 / +300	-55 / +300	-65 / +204	-65 / +204	-55 / +130	-50 / +200	-55 / +204	-55 / +185	-55 / +185	-55 / +120	-40 / +220	-65 / +204	-55 / +204	-55 / +204	-55 / +204	-55 / +175	-55 / +165	-55 / +120
	CTE, in/in/°F x 10 <sup>-6</sup> °C	18 (33)	48 (86)	25 (45)	94 (170)	14 (25)	33 (60)	27 (49)	32 (59)	16 (29)	18 (32)	19 (34)	19 (34)	39 (70)	9 (16)	30 (54)	19 (34)	15 (28)	18 (32)	37 (66)	43 (77)	33 (60)
	Thermal Conductivity, Btu-in/hr-ft <sup>2</sup> -°F	—	—	12.5	—	—	9.0	—	—	—	—	8.4	8.4	4.4	—	—	—	11.0	—	—	—	—
	Tensile Shear Strength, psi <sup>2</sup>	2,800	3,750	1,800	425	2,000	2,500	3,000	1,135	1,200	2,350	—	—	1,135	—	2,500	2,300	2,600	2,700	4,560	4,770	4,800
	Flexural Strength, psi <sup>3</sup>	18,000	ND	15,500	—	13,600	11,400	10,200	—	8,000	11,800	12,300	12,300	14,100	13,800	12,000	13,400	14,100	16,000	13,500	12,000	—
	Volume Resistivity, ohms-cm @ RT	4.0 x 10 <sup>14</sup>	1.0 x 10 <sup>13</sup>	1.0 x 10 <sup>5</sup>	2.0 x 10 <sup>15</sup>	2.0 x 10 <sup>15</sup>	1.0 x 10 <sup>5</sup>	1.2 x 10 <sup>14</sup>	2.0 x 10 <sup>14</sup>	2.0 x 10 <sup>14</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>16</sup>	1.0 x 10 <sup>16</sup>	3.0 x 10 <sup>15</sup>	3.8 x 10 <sup>15</sup>	ND	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>13</sup>	2.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	3.0 x 10 <sup>13</sup>	2.0 x 10 <sup>14</sup>
	Dielectric Strength, volts/mil	450	300	50	550	450	80	440	380	860	460	480	480	460	460	ND	460	420	480	380	410	1,100
	Dielectric Constant, 1.0 kHz	3.01	ND	ND	3.3	4.8	ND	3.12	4.4	6	4.2	4.7	4.7	4.8	4.3	ND	4.7	6.5	6.8	3.5	4.3	—
	Dissipation Factor	0.01	ND	ND	0.02	0.0007	ND	0.01	0.03	0.04	0.04	0.01	0.01	0.014	0.004	ND	0.01	0.09	0.01	0.008	0.4	—
	Chemical Resistance	Good	Excellent	Good	Good	Excellent	Excellent	Good	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Very Good	Very Good	Good	Good
	Color	Amber	Black	Gray	Red	Beige	Gray	Amber	Gray	Clear	Light Gray	Black	Black	Black	Black	Gray	Rust Brown	Gray	Black	Milky Clear	Black	Off-White
	Hardness, Shore D	89	ND	87	43 (Shore A)	90	75	75	73	65	84	92	92	89	90	75	88	89	88	85	78	78
	Cure Shrinkage, in/in <sup>4</sup>	0.01	ND	0.003	0.003	0.0031	0.002	0.002	0.009	0.008	0.004	0.003	0.003	0.003	0.0034	0.002	0.009	0.005	0.003	0.003	0.001	0.001

### Reference Notes

- Epoxies mixed in a 1:1 ratio are available in 50ml dual barrel cartridges. Add "-C" to part number (eg. 568-C). Request 9700 mechanical dispenser, 9800 pneumatic dispenser or 9850 plunger. Also request 9905 3.5" or 9910 6" static mixing nozzles.
- Tested according to ASTM D1002-94. This is a standard test method for determining the shear strength of single lap-joint metal coupons in tension loading.
- Tested according to ASTM D790, "Flexural Properties of Unreinforced and Reinforced and Electrically Insulating Materials, Method-L, Three Point Loading System".
- Linear shrinkage is measured using a 3/4 lb casting mass.
- Also available filled with aluminum oxide, inorganic black pigment or both. Part numbers are 526N-ALOX, 631-ALOX, 526N-BL, 631-BL, 526N-ALOX-BL, and 631-ALOX-BL.
- Meets NASA outgassing requirements.

### Application Notes

- Surface Preparation:** All surfaces must be free of oil, grease, dirt, corrosives, oxides, paint or other foreign matter. Sand blast or abrade non-porous surfaces, or etch using Aremco's Corr-Prep™ CPR2000.
- Mixing:** Two component products should be mixed thoroughly prior to dispensing. For high viscosity systems each component can be preheated separately at 100-125 °F to facilitate mixing and dispensing. Use Aremco's 9700 or 9800 50ml dispensing systems for precise mixing of two component products.

**Application:** In most cases, the adhesive should be applied to both surfaces maintain a glue line of less than 10 mils. After assembling the parts, pressure should be applied to the assembly to prevent warpage and reduce air entrapment. Refer to curing guidelines in the above property chart.

### Abbreviations

- NA Not Applicable  
 ND Not Determined  
 RT Room Temperature

## T-E-Klebertechnik

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