AREMCO

ELECTRICALLY & THERMALLY CONDUCTIVE ADHESIVES & COATINGS

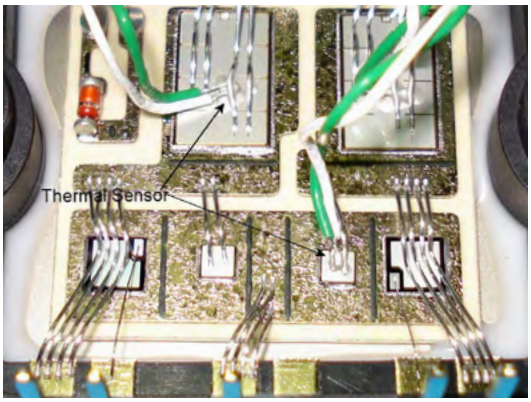
Technical Bulletin A8-S1

Aremco offers a broad range of electrically and thermally conductive adhesives & coatings that provide solutions to a variety of electrical, electronics and thermal design problems throughout industry.

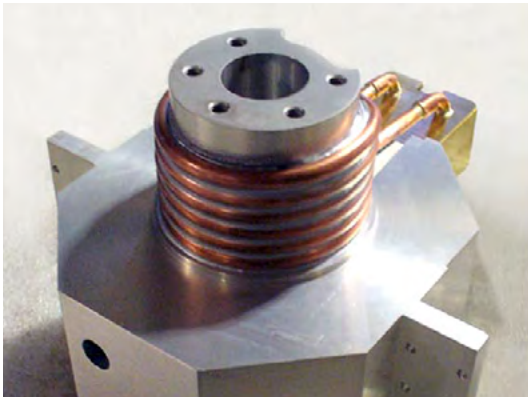
PRODUCT HIGHLIGHTS

Part Number	Adhesive/Coating	Filler	Conductivity		Max Temp °F (°C)
			Electrical	Thermal	
525-N	Adhesive	Silver	✓	✓	340 (170)
556	Adhesive	Silver	✓	✓	340 (170)
556-LV	Adhesive	Silver	✓	✓	340 (170)
556-HT-HC	Adhesive	Silver	✓	✓	390 (200)
556-HT-UHC	Adhesive	Silver	✓	✓	390 (200)
556-HT-SP	Adhesive	Silver	✓	✓	445 (230)
568	Adhesive	Aluminum		✓	400 (204)
597-A	Adhesive	Silver	✓	✓	1700 (927)
597-C	Coating	Silver	✓	✓	1700 (927)
598-A	Adhesive	Nickel	✓	✓	1000 (538)
598-C	Coating	Nickel	✓	✓	1000 (538)
614	Adhesive	Nickel	✓	✓	360 (180)
616	Adhesive	Silver	✓	✓	360 (180)
805	Adhesive	Aluminum		✓	572 (300)
860	Adhesive	Aluminum Nitride		✓	400 (204)

Pyro-Duct™ 597-C metallizes ceramic tubes.



Aremco-Bond™ 556-HT-SP used to bond thermal sensor.



Aremco-Bond™ 568 bonds copper heat exchange tube to aluminum.

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ELECTRICALLY & THERMALLY CONDUCTIVE ADHESIVES & COATINGS

Properties	ADHESIVES													COATINGS	
Product Number	**525-N**	**556**	**556-LV**	**556-HT-UHC**	**556-HT-HC**	**556-HT-SP**	**597-A**	**598-A**	**568[3]**	**614**	**616**	**805**	**860[3]**	**597-C**	**598-C**
Resin type	Epoxy						Ceramic		Epoxy					Silicone	Ceramic
Filler	Silver Flake	Silver Flake	Silver Flake	Silver Flake	Silver Flake	Silver Flake	Silver Flake	Nickel Flake	Aluminum	Nickel Flake	Silver-Coated Glass	Aluminum	Aluminum Nitride	Silver Flake	Nickel Flake
Particle Size, microns	< 28	< 20	< 20	< 20	< 20	< 44	< 20	< 20	< 20	< 20	< 130	< 50	< 10	< 20	< 20
No. Components	1	2	2	2	2	2	1	1	2	2	2	2	2	1	1
Mix Ratio, by Weight, resin:hardener	NA	1:1	100:4	100:2	100:2	1:1	NA	N/A	1:1	1:1	1:1	100:12	1:1	NA	NA
Mixed Specific Gravity, g/cc @ 25 °C	1.85	3.2	2.9	3.7	3.1	3.1	2.3	2.8	0.85	1.8	1.53	1.66	1.90	2	1.5
Mixed Viscosity, cP @ 25 °C	Paste	35,000–40,000	4,000–6,000	40,000–45,000	40,000–45,000	35,000–45,000	Paste	20,000–25,000	Paste	100,000–110,000	50,000–60,000	11,000	40,000	400–800	400–600
Pot Life, 25 gms @ 25 °C	NA	1 Hr	1 Hr	> 48 Hrs	48 Hrs	> 48 Hrs	NA	N/A	4.0 Hr	0.75 Hr	0.75 Hr	< 1.0 Hr	4.0 Hr	NA	NA
Recommend Cure, hr/°F	2/300	2/200	2/200	1/175	2/200	1/350	2/RT + 2/200	2/RT + 2/200	2/200	2/100	2/100	24/100 + 2/200	2/200	1/RT + .5/480	2/RT + 2/200
Alternate Cure, hr/°F	6/250	24/RT	24/RT	0.5/250 or 0.25/300	1/250	2/300	—	—	24–48/RT	1/200 or 8/RT	1/200 or 8/RT	24/RT + 2/200	24–48/RT	—	—
Service Temperature, °F (°C)[1]															
Continuous	340 (170)	340 (170)	340 (170)	390 (200)	390 (200)	445 (230)	1700 (927)	1000 (538)	400 (204)	360 (180)	360 (180)	572 (300)	400 (204)	1700 (927)	1000 (538)
Intermittent	375 (190)	375 (190)	375 (190)	480 (250)	480 (250)	570 (300)	—	—	—	400 (205)	400 (205)	—	—	—	—
Volume Resistivity, ohm-cm	0.006	0.0009	0.0008	< 0.0003	< 0.0001	< 0.0004	0.0002	0.005	1.0×10^5	0.025	0.002–0.004	1.0×10^5	1.0×10^{15}	0.0002	0.005
Tensile Shear Strength, psi[2]	2,500	1,700	1,100	> 1,000	1,700	1,400	—	—	2,500	2,500	1,000	1,800	1,375	—	—
Thermal Conductivity, W/m-K	2.1	2.2	2.2	12.4	2.2	3.5	9.1	2.6	9.0	0.5	0.4	12.5	8.5	9.1	2.6
Hardness, Shore D	76	72	84	90	90	88	—	—	75	78	78	87	75	—	—
Color	Silver	Silver	Silver	Silver	Silver	Silver	Silver	Dark Gray	Gray	Dark Gray	Tan	Gray	Gray	Silver	Dark Gray
Shelf Life, months	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

Reference Notes

[1] The low end of the service temperature range for all products is approximately −67 °F (−55 °C).

[2] Tested according to ASTM D1002-94 at 25 °C, a method for determining the shear strength of a single lap-joint of metal substrates in tensile loading.

[3] Available as a faster-setting. Add "-FSLV" (eg. 568-FSLV).

Abbreviations

NA Not Applicable
RT Room Temperature

Application Notes

Surface Preparation: All surfaces should be free of oil, grease, dirt, corrosives, oxides, paints or other foreign matter. No further preparation is required when coating ceramics, refractories or graphites. Smooth metal surfaces should be abrasive blasted to an SSPC-SP10 near white blast. Remove abrasive residue using air pressure; do not clean with organic solvents.

Aremco's Corr-Prep™ CPR2000 is recommended as an alternative when sandblasting is not possible. This is a specially formulated, water-based, zinc phosphate metal etching solution that is non-toxic, non-flammable, non-caustic, and non-corrosive. It etches metal to provide surface profile for superior coating adhesion to aluminum, galvanized metal, steel, and stainless steel. It also helps to improve long-term corrosion protection. Application is simple — just brush or spray liquid on the substrate, allow to sit for 20–30 minutes, then rinse off and dry substrate thoroughly prior to coating.

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 facility mixing and dispensing. Aremco-Bond™ 568 is available in 50ml cartridges. Order 568-C 50ml Cartridge, 9910 6" Mixing Nozzle and 9850 Plunger or 9700 Mechanical Dispense Gun.

Application: Apply adhesive to both surfaces maintaining a glue line of less than 10 mils. Assemble parts and apply pressure to prevent warpage and reduce air entrapment. Refer to curing guidelines in above property chart.

Refer to Price List for complete order information.