# AREMCO

# **HIGH TEMPERATURE ELECTRICAL COATINGS & SEALANTS**

Technical Bulletin A5-S1



Cerama-Dip<sup>™</sup> 538-N coats high power resistors.

## **PRODUCT HIGHLIGHTS**

## **Ceramic-Inorganic**



terminal.

Ceramacoat<sup>™</sup> 512-N insulates circuit breaker

- 538-N Low viscosity, light gray, electrical insulation coating for high power resistors and rheostats to 2400 °F (1316 °C). Black and green pigments also available.
- 540 Medium viscosity, green pigmented, phosphate-bonded, high strength, electrical insulation coating for applications to 3000 °F (1650 °C).

## Silicone

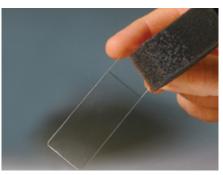
529 Transparent silicone sealer with exceptional electrical and moisture resistance to 800 °F (427 °C). High viscosity (HV) and very high viscosity (VHV) versions available.

### Silicone-Ceramic

4030	Translucent-white, low-viscosity sealer for porous materials to 900 $^{\circ}\text{F}$ (482 $^{\circ}\text{C}\text{)}.$
CP4000-S2	Silicone-resin based, room temperature curing, black pigmented coating for use to 1100 °F (593 °C).
CP4050	Silicone-emulsion based, green pigmented, electrical insulation coating for use to 1100 °F (593 °C). Also available in black, white, blue, brown, yellow and orange pigments.
CP4050-S1	Silicone-resin based, green pigmented, electrical insulation coating for use to 1100 °F (593 °C). Also available in black, white, blue, brown, yellow and orange pigments.
Silicone-Gla	22
SGC4000	Silicone-glass-ceramic, gray, low viscosity, scratch resistant coating 900 °F (482 °C).
SGC4000-HT	Silicone-glass-ceramic, gray, low viscosity, scratch resistant coating 1400 °F (760 °C).

## Glass

GC4000 Glass-enamel, gloss-black coating for stainless steel to 1000 °F (538 °C).



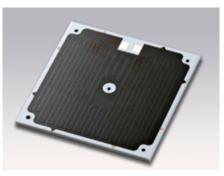
Aremco-Seal<sup>™</sup> 529 transparent high temp sealer.



Cerama-Dip<sup>™</sup> 538-N-GRN coats high power resistor.



Cerama-Dip<sup>™</sup> 538-N-BLK coats rheostats.



Glass-Coat<sup>™</sup> SGC4000 applied to thick-film heater.

# **HIGH TEMPERATURE ELECTRICAL COATINGS & SEALANTS**

Туре	CERAMIC-INORGANIC					SILICONE-CERAMIC			
Product Number	512-N	538-N	538-N-BLK	538-N-GRN	540	4030	CP4000-S2	CP4050	CP4050-S1
Tradename	Ceramacoat™	Cerama-Dip™				Aremco-Seal <sup>™</sup> Corr-Paint <sup>™</sup>			
Color (cured)	Off-White	Light Gray	Black	Green	Green	Translucent-White	Black	Green	Green
Maximum Temperature, °F (°C)	2400 (1316)	2400 (1316)	2400 (1316)	2400 (1316))	3000 (1650)	900 (482)	1100 (593)	1100 (593)	1100 (593)
No. Components	1	1	1	1	1	1	1	1	1
Viscosity, cP1	60,000-80,000	5,000–15,000	5,000–15,000	20,000–30,000	15,000–25,000	50–100	250-500	500–750	300–500
Specific Gravity, g/cc	1.98	1.55	1.57	1.73	2.22	1.31	1.45	1.31	1.36
Dielectric Breakdown Strength, VDC/mil	160	135	110	142	70	> 750	675	285	1500
Solids by Weight, %	75.9	55.3	55.5	62.3	75.0	55.8	71.5	48.5	57.1
Solids by Volume, $\%$	55.0	32.3	32.6	42.0	48.9	43.3	75.2	39.5	44.3
WFT, mils (microns) <sup>2</sup>	1.82 (46.2)	3.10 (78.6)	3.07 (78.0)	2.38 (60.5)	2.05 (52.0)	2.31 (58.6)	1.33 (33.8)	2.53 (64.3)	2.3 (57.4)
<b>DFT,</b> mils (microns) <sup>3</sup>	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.0 (25.4)
<b>Theoretical Dry Film</b> <b>Coverage</b> <sup>4</sup> @ 1 mil, ft <sup>2</sup> /gal (m <sup>2</sup> /liter)	882 (21.6)	518 (12.7)	523 (12.8)	674 (16.5)	784 (19.2)	695 (17.1)	1206 (29.6)	634 (15.6)	710 (17.4)
Curing, Min Air Set, hrs⁵	2-4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Curing, Heat Cure, °F, hrs	200, 2–4 + 350, 1–2 + 500, 1	200, 2–4 + 350, 1–2	200, 2–4 + 350, 1–2	200, 2–4 + 350, 1–2	200, 1–2 + 350, 1–2 + 500, 1	480, 0.75	Not Required	480, 0.75	480, 0.75
Application Temperature, °F	50-90	50–90	50-90	50-90	50-90	50–120	50–120	50–120	50–120
Thinner	512-N-T	538-N-T	538-N-T	538-N-T	540-T	Distilled Water	T-Butyl Acetate	Distilled Water	PM Acetate
Flash Point, °F/°C	NA	NA	NA	NA	NA	> 212 (100)	~ 113 (45)	> 212 (100)	~118 (48)
Volatiles, Ibs/gal	0.00	0.00	0.00	0.00	0.0	0.87	1.81	0.98	4.90
Shelf Life, months	6	6	6	6	6	6	6	6	6
Storage Temperature, °F	55-85	55–85	55–85	55–85	55–85	55–85	55–85	55–85	40-90

#### **Reference Notes**

<sup>1</sup> Viscosity is measured using a Brookfield LV Viscometer.

<sup>2</sup> Estimated Wet Film Thickness (WFT).

<sup>3</sup> Recommended Dry Film Thickness (DFT).

<sup>4</sup> Actual coverage will vary depending on material losses during mixing and application.

<sup>5</sup> Where a value is provided for "Min Air Set", it is recommended that the coating set at room temperature for, at minimum, the specified time prior to curing.

#### Abbreviations

NA Not Applicable

NR Not Required

DFT Dry Film Thickness

WFT Wet Film Thickness

#### Surface Preparation Notes

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. Quartz should be sandblasted whenever possible. Smooth metal surfaces should be sandblasted or etched using Aremco's Corr-Prep<sup>™</sup> CPR2000.

## **HIGH TEMPERATURE ELECTRICAL COATINGS & SEALANTS**

Туре		SILICONE		SILICON	GLASS	
Product Number	529	529-HV	529-VHV	SGC4000	SGC4000-HT	GC4000
Tradename	· · · · ·	Aremco-Seal™		·		
Color (cured)	Clear	Clear	Clear	Light Gray	Black	Black
Maximum Temperature, °F (°C)	800 (427)	800 (427)	800 (427)	900 (482)	1400 (760)	1000 (538)
No. Components	1	1	1	1	1	1
Viscosity, cP <sup>1</sup>	50–250	1,200–1,600	12,000–14,000	40-80	900–1,200	200–400
Specific Gravity, g/cc	1.05	1.09	1.22	1.59	1.61	1.65
Dielectric Breakdown Strength, VDC/mil	> 335	> 430	> 375	1,000	1,000	45
Solids by Weight, %	68.0	74.9	80.0	74.0	79.0	62.2
Solids by Volume, %	60.9	69.0	75.3	55.5	53.6	37.8
WFT, mils (microns) <sup>2</sup>	1.64 (41.7)	1.45 (36.8)	1.33 (33.7)	1.80 (45.8)	1.87 (47.4)	2.64 (67.1)
<b>DFT,</b> mils (microns) <sup>3</sup>	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
<b>Theoretical Dry Film</b> <b>Coverage</b> <sup>4</sup> @ 1 mil, ft <sup>2</sup> /gal (m <sup>2</sup> /liter)	976 (24.0)	1106 (27.2)	1208 (29.6)	890 (21.8)	860 (21.1)	607 (14.9)
Curing, Min Air Set, hrs⁵	0.5–1.0	0.5–1.0	0.5–1.0	0.25	0.25	0.5
Curing, Heat Cure, °F, hrs	200, 0.5–1 + 480, .75–1	200, 0.5–1 + 480, .75–1	200, 0.5–1 + 480, .75–1	200, 0.25 + 480, 0.25 + 1000, 0.20	200, 0.25 + 480, 0.25 + 1300, 0.20	200, 10 Min + 1000, 20 Min + 1300, 3 Min
Application Temperature, °F	50-90	50-90	50–90	50–120	50–120	50-90
Thinner	MEK	MEK	MEK	Ethanol	PM Acetate	Water
Flash Point, °F/°C	77 (25)	82 (28)	86 (30)	96 (36)	115 (46)	NA
Volatiles, Ibs/gal	2.80	2.28	2.00	3.50	3.90	0.00
Shelf Life, months	6	6	6	6	6	6
Storage Temperature, °F	40-90	40-90	40-90	40–90	40-90	40-90

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