

# HIGH TEMPERATURE THERMAL SPRAY SEALANTS

Technical Bulletin A5-S3

## **PRODUCT HIGHLIGHTS**

Single part, ultra-low viscosity, water-dispersed,

inorganic, aluminum phosphate solution for penetrating

ultra-fine porosity applications 3000 °F (1650 °C).

503-VFG-C Single part, alumina-filled, water-dispersed, phosphate-

bonded, highly abrasion and corrosion resistant sealer for applications to 3000 °F (1650 °C). Available in many

standard colors.

503-VFG-C-WHT White 503-VFG-C-BLK Black 503-VFG-C-BLU Blue 503-VFG-C-RED Red 503-VFG-C-ORG Orange

Single part, zirconium oxide sealer produces a hard,

oxidation resistant coating for applications to 3000 °F

(1650 °C).

CP2000 Single part, urethane-based, gloss black, low viscosity,

room temperature curing, abrasion and corrosion resistant sealer for applications to 400 °F (204 °C).

CP2040 Single part, ultra-low viscosity, fast-curing, corrosion

resistant, clear phenolic sealer for impregnating micropores and cracks as fine as 0.0005" for

applications to 400 °F (204 °C).

CP2080 Two-part, medium viscosity, clear Novolac-epoxy

with exceptional abrasion and corrosion resistance for continuous operations to 300 °F (150 °C) and

intermittent use to 400 °F (204 °C).

CP2090 Two-part, low viscosity, room temperature curing, epoxy

sealer for continuous applications to 400 °F (204 °C).

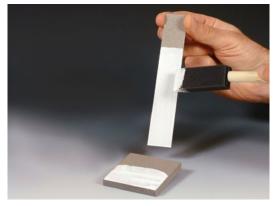
CP4010-S1-LV Single part, low viscosity, aluminum-rich, heat-curable, silicone sealer offering exceptional outdoor weathering

resistance to 1100 °F (593 °C).

CP40XX-S2-HT Single part, low viscosity, room temperature curing, flame resistant, dielectric, silicone-glass-ceramic sealer

offering continuous temperature resistance to 1500 °F (816 °C) and intermittent resistance to 1800 °F (982 °C).

CP4000-S2-HT Black
CP4020-S2-HT Navy Gray
CP4040-S2-HT Navy White
CP4080-S3-HT Navy Yellow



Ceramacoat™ 503-VFG-C-WHT applied to thermal spray substrate.



Ceramabind<sup>™</sup> 542 seals thermal spray on sensor.



CP2000 seals thermal spray on small heater.



CP2000 seals thermal spray on motor housing.

## HIGH TEMPERATURE THERMAL SPRAY SEALANTS

Product Number	542	503-VFG-C <sup>6</sup>	634-ZOS	CP2000	CP2040	CP2080	CP2090	CP4010-S1-LV	CP4000-S2-HT <sup>7</sup>
Tradename	Ceramabind <sup>™</sup> Ceramacoat <sup>™</sup>		Corr-Paint <sup>™</sup>						
Туре	Inorganic		Urethane	Phenolic	Novolac-Epoxy		Silicone		
Color (cured)	Clear	White	Off-White	Gloss Black	Clear	Clear	Amber	Aluminum	Black
<b>Maximum Temperature,</b> °F (°C)	3000 (1650)	3000 (1650)	3000 (1650)	400 (204)	400 (204)	400 (204)	400 (204)	1100 ( 593)	1800 (982)
No. Components	1	1	1	1	1	2	2	1	1
Mix Ratio, by Weight (by Volume)	NA	NA	NA	NA	NA	100:40 (2:1)	100:25	NA	NA
Viscosity, cP1	35–45	5,000–7,000	500–1,500	200–240	5–15	600-1000	100–200	100–150	150–500
Specific Gravity, g/cc	1.47	2.34	2.00	1.05	0.87	1.10	1.10	0.99	1.50
Solids by Weight, %	41.0	76.0	64.8	67.0	10.0	100.0	100.0	23.9	73.0
Solids by Volume, %	22.0	53.7	30.6	49.0	21.0	100.0	100.0	17.1	70.0
WFT, mils (microns) <sup>2</sup>	4.54 (115.3)	1.86 (47.3)	3.27 (83.1)	2.00 (50.5)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	5.8 (14850)	1.43 (36.3)
<b>DFT,</b> mils (microns) <sup>3</sup>	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.16 (4.1)	1.00 (25.4)	1.00 (25.4)	1.0 (25.4)	1.00 (25.4)
Theoretical Dry Film Coverage <sup>4</sup> @ 1 mil, ft <sup>2</sup> /gal (m <sup>2</sup> /liter)	353 (8.7)	861 (21.1)	490 (12.0)	722 (17.7)	260 (6.4)	1604 (39.3)	1604 (39.3)	274 (6.7)	1122 (27.5)
Curing, Min Air Set, hrs <sup>5</sup>	1.0-2.0	1.0-2.0	1.0-2.0	0.5	0.5	8.0	1.0	1.0	1.0
Curing, Heat Cure, °F, hrs	200/1 + 500/1 + 700/1	200/1 + 500/1 + 700/1	200/2 + 350/1 + 500/1	RT/24 or 250/1	300/.15	RT/24 or 150/2	RT/48 or 150/3	480/0.75	RT/24-48
Application Temperature, °F	50-90	50–90	50–90	50–90	50–90	50-90	50-90	50–120	50–90
Thinner	Water	503-T, Water	634-ZOS-T, Water	Hi-Flash Naptha	n-Butanol	Xylene	Xylene	PM Acetate	T-Butyl Acetate
Flash Point, °F/°C	NA	NA	> 200 (93)	140 (60)	73 (23)	> 200 (93)	> 200 (93)	111 (44)	117 (47)
Volatiles, lbs/gal	0.00	0.00	0.05	2.86	5.74	0.0	0.0	6.6	2.3
Shelf Life, months	6	6	6	12	12	12	12	6	3
Storage Temperature, °F	55-85	55–85	55–85	40-80	40-50	40-90	40–90	40–90	40-90

#### Reference Notes

- <sup>1</sup> Viscosity is measured using a Brookfield LV Viscometer; spindle and speed selection vary depending on the product.
- <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.
- Where a value is provided for "Min Air Set", it is recommended to set the coating at room temperature for, at minimum, the specified time prior to curing.

#### Ceramacoat™ 503-VFG-C

<sup>6</sup> Available in the following standard colors:

503-VFG-C-WHT White 503-VFG-C-BLK Black 503-VFG-C-BLU Blue 503-VFG-C-RED Red 503-VFG-C-ORG Orange

### Corr-Paint™ CP40XX-S2-HT

<sup>7</sup> Available in the following standard colors: CP4000-S2-HT Black

CP4020-S2-HT Navy Gray
CP4040-S2-HT Navy White
CP4080-S2-HT Navy Yellow

### **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® CPR2000.

#### **Abbreviations**

NA Not Applicable
NR Not Required
DFT Dry Film Thickness
WFT Wet Film Thickness