



Graphi-Bond™ 551-RN bonds graphite blocks.



Graphi-Bond™ 551-RN seals sensor in carbon brushes.

Aremco's high temperature graphite adhesives are formulated using both phenolic and silicate binders to bond carbon, carbon fiber composite (CFC), and graphite components, structures and tools used in a broad range of applications to 5400 °F (2985 °C).

Part No.	551-RN	551-RN-MV	669
<b>Filler</b>	Graphite	Carbon	Graphite
<b>Binder</b>	Phenolic	Phenolic	Silicate
<b>Consistency</b>	High Viscosity	Medium Viscosity	Low Viscosity
<b>Use Atmosphere</b>	Reducing/Vacuum	Reducing/Vacuum	Oxidizing
<b>Bond Strength</b>	High	Ultra-High	Moderate
<b>Max Temperature</b>	5400 °F (2985 °C)	5400 °F (2985 °C)	1400 °F (760 °C)

### TYPICAL APPLICATIONS

#### Bonding

- Graphite Insulation
- Carbon Brick
- Carbon Foam & Felt
- Carbon Fiber Composites
- Graphite Rams & Punches
- Graphite Sight Tubes
- Graphite Pour Spouts
- Graphite Foil to Rigid Graphite Insulation
- Graphite Foil to CFC

#### Laminating

- Carbon Fiber Composites

#### Repairing

- Graphite Trays, Dies, Jigs, Fixtures
- Patch Holes
- Fix Scratches
- Repair Susceptors

#### Sealing

- Porosity in Carbon & Graphite

## HIGH TEMPERATURE GRAPHITE ADHESIVES PROPERTIES

Part Number	551-RN <sup>1,2</sup>	551-RN-MV <sup>1,2</sup>	669	
Tradename	Graphi-Bond™			
Major Constituent	Graphite	Carbon	Graphite	
Color	Black	Black	Black	
Temperature Limit, °F (°C)	5400 (2985)	5400 (2985)	1400 (760)	
No. Components	1	1	1	
Viscosity, cP	Paste	60,000–90,000	20,000–40,000	
Specific Gravity, g/cc	1.45–1.50	1.15–1.25	1.45–1.50	
CTE, in/in/°F × 10 <sup>-6</sup> (°C)	4.1 (7.4)	4.1 (7.4)	4.2 (7.6)	
Handling	Mix Ratio, powder:liquid	NA	NA	
	Thinner	Ethanol <sup>3</sup>	669-T / H <sub>2</sub> O	
	Application Temperature, °F	40–90	40–90	50–90
	Storage Temperature, °F	30–75	30–75	40–90
	Shelf Life, months	6	6	6
Curing	Air Set, hrs	1–4	1–4	1–4
	Heat Cure, °F, hrs	265, 4 + 500, 2	265, 4 + 500, 2	200, 2
Bond Type	99% Carbonaceous	99% Carbonaceous	Silicate-Graphite	
Dielectric Strength, volts/mil @ RT	75	130	105	
Lap-Shear Strength, psi @ RT Post-Cure	810	1425	224	
Moisture Resistance	Excellent	Excellent	Excellent	
Alkali Resistance	Good	Good	Good	
Acid Resistance	Good	Good	Good	

## APPLICATION PROCEDURES

### Surface Preparation

Remove any loose or embedded carbon or graphite dust thoroughly prior to adhesive application and make sure the substrate is completely dry and free of moisture.

### Mixing

Make sure adhesive is brought to room temperature prior to application and remix as needed using a spatula or automatic equipment. Refer to Tech Bulletin A12 for information about Aremco's **Model 7000 Pneumatic Mixer**. Viscosity may be adjusted by using the thinner indicated in the property chart up to 20% by weight.

### Application

Apply a thin coat of adhesive to each substrate using a proper tool. Use a clamp to maintain a uniform glue line thickness of 5–10 mils across the joint. Wipe away excess material prior to drying and curing.

### Curing

Refer to the Property Chart for specific curing instructions for each product. Note that excessive film thickness or rapid heating may result in blisters.

### Footnotes

<sup>1</sup> Graphi-Bond 551-RN and 551-RN-MV are also offered in a two-part, resin and powder, kit. Add "-X" to part number.

<sup>2</sup> Graphi-Bond 551-RN and 551-RN-MV volatile loss is complete at ~1300 °F (700 °C). Major loss occurs at 200–400 °C, methane at < 400 °C, hydrogen to 700 °C.

<sup>3</sup> Graphi-Bond™ 551-RN and 551-RN-MV can also be thinned with methanol and isopropyl alcohol.

### Abbreviations

NA Not Applicable

Refer to Price List for availability of sample kits and complete order information.

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The user assumes all risk of use or handling whether or not in accordance with directions or suggestions, or used singly or in combination with other products.