

# GP<sup>®</sup> 486G34/GP<sup>®</sup> 4826 Phenolic System for FRP

## PRODUCT INFORMATION

### DESCRIPTION

GP<sup>®</sup> 486G34 phenolic resin with GP<sup>®</sup> 4826 acid catalyst was developed by Georgia-Pacific Chemicals for use in the manufacture of fiber reinforced plastic (FRP) products. The resin system is suitable for hand layup, resin transfer molding (RTM), and filament winding. FRP products manufactured with the GP 486G34/GP 4826 system demonstrate the flame resistance and low smoke generation required in many composite applications where fire and smoke are a concern such as in the aerospace, construction, and mass transit industries.

### USES AND APPLICATION

By varying the amount of the catalyst mixture in the GP 486G34 resin, desired pot life and cure speed can be achieved; e.g., decreased catalyst mixture level results in increased pot life.

The laminate, hand laid or RTM, should be cured for two hours at a temperature of 140°F - 176°F (60°C - 80°C). Mechanical strength and glass transition temperature can be enhanced by post-cure at 180°F - 210°F (82°C - 100°C). Slow heating rate and gradual increase in post-cure temperature are suggested to avoid blistering and optimize the performance of finished FRP products.

With filament winding, initial cure should be performed on the mandrel using infrared, hot air, or hot water heating sources at 160°F - 180°F (71°C - 82°C). Temperatures higher than 180°F may cause blistering. After demolding, post-cure at 180°F - 210°F is recommended.

For fiberglass reinforcement, phenolic-compatible glass should be used.

For application-specific questions, please contact your Georgia-Pacific Chemicals technical or sales representative.

### STORAGE AND HANDLING

GP 486G34 resin and GP 4826 catalyst should be used in areas with good ventilation. Storage at temperatures below 40°F (5°C) is recommended for the resin, which should be brought to room temperature prior to use. GP 4826 acid catalyst can be stored at room temperature.

As with any resin/acid system, precise and thorough mixing of the resin and catalyst mixture is essential to achieve uniform cure and optimum quality.

Georgia-Pacific Chemicals supplies GP 486G34 resin and GP 4826 catalyst in drums and bulk quantities. Additional information on the safe handling of GP 486G34 resin and GP 4826 catalyst is in the Safety Data Sheets available from Georgia-Pacific Chemicals.

*See page 2 for Typical Properties*

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### Typical Properties of GP<sup>®</sup> 486G34 Resin

Type	Phenol-Formaldehyde Resole
Appearance	Amber to brown liquid
Non-Volatiles, %	71 – 75
Viscosity at 25°C, cps	350 – 750
pH	7.3 – 7.8
Specific Gravity at 25°C	1.22 – 1.26
Weight per gallon, lbs.	10
Flash Point, °C	>90
Free Formaldehyde, %	1.0 maximum
Storage Life at 25°C	30 days

### GP 486G34/GP 4826 Phenolic System

GP 486G34/GP 4826, pbw	Pot Life, Minutes <sup>1</sup>	Cure Speed, Sec. @194°F (90°C) <sup>2</sup>
100/ 6	60	90
100/ 7	45	75
100/ 8	30	45

<sup>1</sup> Pot Life is measured by Brookfield Viscosity increase to 3000 cps in 1000-gram mass.

<sup>2</sup> Cure Speed measured by Hot Plate Stroke test @ 194°F.

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