

Product Information

Firepel Polyester Resin for Fire Retardant Applications

TYPICAL CAST MECHANICAL PROPERTIES* (1) see back page

Test	Unit of Measure	Nominal	Test Method
Tensile Strength	psi/MPa	10,700/73.8	ASTM D 638
Tensile Modulus	psi/GPa	580,000/4	ASTMD 638
Tensile Elongation	%	2.2	ASTM D 638
Flexural Strength	psi/MPa	15,400/106	ASTM D 790
Flexural Modulus	psi/GPa	590,000/4.1	ASTM D 790
Heat Distortion Temperature °F/°C @ 264 psi		194/90	ASTM D 648
Barcol Hardness		45	ASTM D 2583

TYPICAL LIQUID RESIN PROPERTIES of FIREPEL K130* (2) see back page

Versions	Viscosity, cps	Thix Index	Gel Time, Minutes	Gel to Peak Exotherm, Minutes	Peak Exotherm °F/°C	Specific Gravity	Styrene Content,%
K130-AAA-00	1700 ¹	NA	6 ²	8	390/199	1.53	25
K130-PTA-15	375 ³	3	15 ⁵	9	347/175	1.29	33
K130-PTD-20	400 ³	2.5 ⁴	12 ⁵	10	340/171	1.30	33
K130-PTJ-20	400 ³	2 ⁴	15 ⁴	9	350/177	1.29	34
K130-PTJ-45	450 ³	2	45 ⁸	10	320/160	1.29	33
K130-NNT-00	200 ³	NA	15 ⁶	9	350/177	1.29	34
K130-TTU-00	400 ³	2 ⁴	15 ⁷	11	335/168	1.29	34

NA- Not applicable

1)77°F/25°C Brookfield RV viscosity spindle 3 at 20 rpm

2)180°F/82°C SPI gel with 1.0% BPO

3)77°F/25°C Brookfield RV viscosity spindle 2 at 20 rpm

4)20 rpm Thix Index

5)77°F/25°C Gel time with 1.25% MEKP

6)77°F/25°C Gel time with 0.25% Cobalt 6% and 1.25% MEKP

7)77°F/25°C Gel time with 0.2% Cobalt 12% and 0.1% DEA

8)77°F/25°C Gel time with 2.0% MEKP

*Typical properties are not to be construed as specifications.

FLAMMABILITY PROPERTIES **, ***

Laminate Construction

1 Plies of 1.5 ounce per square foot fiberglass chopped strand mat

Glass content- 30-32%

ASTM E 84			UL 94			Oxygen Index
Flame Spread	Smoke Developed	Class	HB Rating	V-0 Rating	5V Rating	ASTM D 2863
25	135	I	Pass	Pass	Pass	39

** Post cured

*** Tests on K130-PT, NN and TT versions.



DESCRIPTION

Firepel K130 series resins are designed for fire resistant applications where ASTM E 84 Class I flame and smoke development are required. Flammability of composite parts is dependent on the geometry of the part, degree of cure, reinforcement content, types of reinforcement, etc. It is the end user's responsibility to ensure that finished parts meet the required specifications. Published flammability properties should be used for comparison purposes only.

Firepel K130-AAA-00 is the concentrated highly brominated base resin that is used to manufacture the other versions. Firepel K130-AAA-00 can be used to manufacture specific tailored formulations.

BENEFITS

Fire Retardant

Firepel K130 PT, NN and TT series meet ASTM E 84 Class I flame and smoke requirements.

Low VOC

All Firepel K130 versions contain less than 35% styrene.

Versatile

Suitable for various fabricating methods such as hand lay-up, spray-up, filament winding, etc. The Firepel K130 series molecular architecture provides an excellent balance of fire retardant, physical properties and cost.

Firepel® K130 Polyester Resin

PERFORMANCE GUIDELINES

A. Keep full strength catalyst levels between 1.0% - 2.0% of the total resin weight.

B. Maintain shop temperatures between 65°F/18°C and 90°F/32°C and humidity between 40% and 90%. Consistent shop conditions contribute to consistent gel times and will help the fabricator make a high quality part.

STORAGE STABILITY

This product is stable for three months from the date of manufacture when stored in the original containers, away from direct sunlight or other UV light sources and at or below 25°C (77°F).

After extended storage, some drift may occur in the product viscosity and gel time.

SAFETY

See appropriate Material Safety Data Sheet for guidelines.

APPLICATION GUIDELINES

A. Halogen containing resins are generally less resistant to UV light than general purpose resins. Fabricators are advised to conduct their own tests to determine the suitability of using Firepel K130 Series Resins for outdoor applications.

APPLICATION GUIDELINES

B. Due to the curing characteristics of the Firepel K130 series resins, it is desirable to complete all secondary bonding as soon as possible. Exposure of the laminate to sunlight will result in severe secondary bonding problems. After 24 hours of cure, it may become necessary to abrade the laminate to ensure good secondary bonding, especially if the surface of the laminate has been allowed to become resin rich. Low fiberglass content and resin puddling should be avoided with this product. To assure adequate bonding to gel coats, fabricators should pre-wet the gel coat surface with a thin pass of catalyzed resin prior to lamination.

C. Chemical resistance studies have indicated the dicyclopentadiene resins such as Firepel K130 series resins have inferior resistance to certain hydrophobic liquids, such as hydrocarbons. Fuel storage tanks should not be produced with the Firepel K130 series resins. If your manufacturing needs require a more corrosion resistant resin, please contact your AOC representative for information or technical assistance on AOC's line of isophthalic or vinyl ester resins.

ISO 9001:2000 CERTIFIED

The Quality Management Systems at every AOC manufacturing facility have been certified as meeting ISO 9001:2000 standards. This certification recognizes that each AOC facility has an internationally accepted model in place for managing and assuring quality. We follow the practices set forth in this model to add value to the resins we make for our customers.

FOOTNOTES

(1)

Based on tests of Firepel® K130 base resin with 35% styrene at 77°F/25°C and 50% relative humidity. All tests performed on unreinforced cured resin castings. Thixotropic components, if applicable, are excluded from casting samples. Castings prepared using 1.0% MEKP, 0.10% Cobalt 12% post cured for 5 hours at 212°F/100°C.

(2)

The gel times shown are typical but may be affected by catalyst, promoter, inhibitor concentration, resin, mold, and shop temperature. Variations in gelling characteristics can be expected between different lots of catalysts and at extremely high humidities. Pigment and fillers can retard or accelerate gelation. It is recommended that the fabricator check the gelling characteristics of a small quantity of resin under actual operating conditions prior to use.



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