Technical Datasheet

HETRON™FR 605-350 Epoxy Vinyl Ester Series Resin

Performance Materials

Overview

HETRON FR 605-350 resin series is a brominated epoxy vinyl ester resin that offers a high degree of fire retardance while providing excellent toughness. Optimum fire retardance is achieved when antimony compounds are added to the resin. Laminates made with HETRON FR 605-300 series resin have met ASTM E-84 Flame Spread "Class 2" rating (less than 75). With the use of antimony synergists, "Class 1" ratings can be achieved.[1]

[1] The fire retardancy and flame spread data were obtained from controlled and/or small scale bench tests and the results apply specifically to the specimens tested, in the manner tested. They are not necessarily predictive of product performance in a real fire situation. HETRON resins are organic materials and the fabricated products constructed from them will burn under the right conditions of heat and oxygen supply. This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

Applications and Use

HETRON FR 605-350 resin is designed for ease of fabrication using, especially where consistent high temperature cure characteristics are desired - e.g. pultrusion. This resin is suitable for equipment handling mixtures of air and hot gases, building panels and flooring compounds where a degree of ignition inhibiting properties are needed.

Recommendations for specific services and environments can be provided by contacting us at hetron@altapm.com

HETRON FR 605-350 series resins, which is manufactured to an elevated temperature SPI gel specification, was originally marketed as DERAKANE™ 510 C-350 resin, which is manufactured to a room temperature gel test specification.

Typical Liquid Resin Properties

Property at 25°C (77°F) unless otherwise marked	HETRON FR 605-350	HETRON FR 605-350 M	Unit
Dynamic Viscosity	400	420	mPa-s
Kinematic Viscosity	350	370	cSt
Styrene Content	35	35	%
Density	1.14	1.14	gm/ml
SPI Gel Time	7.5	9	minutes
Peak Exotherm Time	12	11.5	minutes
Peak Exotherm Temperature	190	190	°C
SPI Gel Time run at 82°C using 1.0% BPO Crystals or 2% ATC Paste			

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Typical Mechanical Properties

Property of a cured casting at 77°F	Value (SI)	Value (US)	Method (SI / US)
Tensile Strength	86 MPa	12,000 psi	ISO 527 / ASTM D638
Tensile Modulus	3200 MPa	460 ksi	ISO 527 / ASTM D638
Tensile Elongation, Yield	5-6%	5-6%	ISO 527 / ASTM D638
Flexural Strength	150 MPa	22,000 psi	ISO 178 / ASTM D790
Flexural Modulus	3400 MPa	490 ksi	ISO 178 / ASTM D790
Heat Distortion Temperature	105°C	220°F	ISO 75A /ASTM D648
Glass Transition Temperature, Tg	120°C	250°F	ISO 11357 / ASTM D3418
Barcol Hardness	35	35	EN59 / ASTM D2583
Cure Schedule: 24 hours at room temperature followed by 24 hours at 120°C.			

Standard package
Steel drum with net weight of 205 kgs (452 lbs)

Commercial Warranty
Four months from the date of manufacture, when stored in accordance with the storage conditions stated below.

Storage
All other conditions being equal, higher storage temperatures will reduce product stability and lower storage temperatures will extend product stability. Store at temperatures below 25°C / 77°F. Avoid exposure of storage tanks and storage containers to heat such as direct sunlight, steam pipes, and other heating sources.

Containers: Keep containers sealed to prevent moisture pick-up and monomer loss. Do not store drums and other small containers outdoors. Mild mixing is recommended after prolonged storage. Rotate stock.

Bulk Storage: Consult with your ALTA Performance Materials account representative for a guide to best practices on bulk resin storage and handling.

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Notice

All information presented herein is believed to be accurate and reliable, and is solely for the user's consideration, investigation, and verification. The information is not to be taken as an express or implied representation or warranty for which ALTA Performance Materials assumes legal responsibility. Any warranties, including warranties of merchantability, fitness for use or non-infringement of intellectual property rights of third parties, are herewith expressly excluded.

Since the user's product formulations, specific use applications and conditions of use are beyond the control of ALTA Performance Materials, ALTA Performance Materials makes no warranty or representation regarding the results which may be obtained by the user. It shall be the sole responsibility of the user to determine the suitability of any of the products mentioned for the user's specific application.

ALTA Performance Materials requests that the user reads, understands, and complies with the information contained herein and the current Safety Data Sheet.

Commercial contacts by region available at:

https://altapm.com/contact/

[i]All properties are typical values. Results may vary. Typical values are not a guaranteed analysis of any specific lot or specification.

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