

Technical Datasheet

INEOS Composites

HETRON™ F 240 TFE Flame retardant resin

HETRON F 240 TFE is a flame retardant polyester resin containing halogens and antimony trioxide. HETRON F 240 TFE is thixotropic, white pigmented and pre-accelerated. HETRON F 240 TFE would be expected to achieve a M2 F2 rating when tested to NFP92501 and NFF16101 for the laminate structure in which it has been tested (report and certificate available on request).

Typical liquid resin properties

| Property at 23°C | Value | Unit | Method |
|-----------------------------------|-------|------|--------|
| Viscosity, Brookfield RV2, 20 rpm | 1000 | mPas | D 005 |
| Monomer content | 28 | % | D 003 |
| Density | 1,45 | | QC 16 |
| Geltime | 15 | min | D 006 |
| + 1.5 % MEKP-50 | | | |

Typical cured resin properties

| Property | Value | Unit | Method |
|-----------------------------|-------|--------|------------|
| Tensile strength | 35 | MPa | ISO 527 |
| Tensile modulus | 6000 | MPa | ISO 527 |
| Elongation at break | 1,0 | % | ISO 527 |
| Flexural strength | 55 | MPa | ISO 178 |
| Heat deflection temperature | 75 | °C | ISO 75 (A) |
| Hardness | 50 | Barcol | ASTM D2583 |

Application and use

HETRON F 240 TFE resin can be used in contact moulding, spray-up and cold press applications. It is particularly recommended for finished products which need very good flame retardancy and low smoke toxicity, e.g. construction (sanitary etc.), and transport (trains underground/subway).

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Fire retardant properties (1)

| Test | Value ⁽¹⁾ | Method |
|---|----------------------|------------------|
| Oxygen index | 32 % | NF EN ISO 4589-2 |
| Epiradiator test (LNE-09/08) | M2 | NFP 92-501 |
| Smoke test (LNE- 12/12) | F2 | NFF 16-101 |
| Flame test (LNE - 12/01) | V0 | UL 94 |
| Flammability test (BRE-06/2016) | Class 1 | BS 476 part7 |
| Tunnel test (SouthWest Research Institute -2007) | FSI = 20 / SDI = 850 | ASTM E-84 |
| Fire testing (Die Bahn-11/04) | S4-SR1-ST2 | DIN 5510-2 |
| Euroclass-SBI (SouthWest Research Institute- 2007) | CS3d0 | EN 13501-1 |
| Epiradiator test (LNE - 09/11) with Gelcoat Maxguard FR | M2 | NF P 92-501 |
| Smoke test (LNE- 12/12) with Gelcoat Maxguard FR | F2 | NFF 16-101 |

(1) Fire retardancy ratings mentioned above are indicative values, based on material tested in third party laboratories. These values should not be construed as guaranteed results.

A large number of parameters relating to user's laminate design and manufacturing process will impact fire retardancy (amongst others: part thickness, part homogeneity, glass ratio, filler ratio, gel coat, paint, etc.). Optimum fire retardancy can only be obtained on fully cured resins and laminates.

The final part in which the resin will be used shall imperatively be tested according to relevant norms prior to full industrialization, in compliance with laws and regulations in force. It shall be the sole responsibility of the user to determine the suitability of the product for the user's specific application.

Certificates and approvals

The manufacturing, quality control and distribution of products, by INEOS Composites, are complying with one or more of the following programs or standards: ISO 9001, ISO 14001 and OHSAS 18001.

Handling and storage

HETRON F 240 TFE resin is delivered in open top drums. The resin must be stirred very well before use.

It is highly recommended that all material is stored at stable temperatures under 25°C preferably indoors, and away from direct sunlight. Prolonged storage or storage outside of recommended

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conditions can influence liquid resin properties like viscosity and geltime. The maximum shelf life of HETRON F 240 TFE resin is three (3) months.

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 INEOS Composites 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 INEOS Composites, INEOS Composites 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.

INEOS Composites requests that the user reads, understands and complies with the information contained herein and the current Material Safety Data Sheet.