

PPO - Polyphenylene Oxide

Facts:

PPO, Polyphenylene Oxide is a tough, stiff material with high glass-transition temperature and high melt point giving a high heat resistance. The material also has outstanding electrical properties and resistance to acids and bases.

At high temperatures PPO maintains its good load bearing characteristics and dimensional stability. The material also has excellent dielectric properties and may be rated as self extinguishing and non-dripping.

PPO is rarely used in its pure form due to difficulties in processing, most commercial grades are blended with polystyrene, high impact styrene-butadiene copolymer or polyamide.

Applications:

Automotive interior and exterior parts, business machines, medical equipment, telecommunications equipment, microwaveable packaging, appliances and speciality applications.

Limitations:

- High viscosity
- Colour shift with UV exposure

NORYL™ FE1520PW resin

Polyphenylene Ether + PS

SABIC Innovative Plastics Europe



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Technical Data

Product Description

Noryl* FE1520PW resin is a blend of polyphenylene oxide (PPO) and polystyrene (PS) resin that contains 20% glass reinforcement. The resin is suitable for injection molding. Noryl FE1520PW resin has been developed for fluid engineering applications that require improved hydrolytic stability. Noryl FE1520PW resin has been certified for potable water applications up to 85C in Europe and North America in limited colors.

General

| | |
|-----------------------------|---|
| Material Status | • Commercial: Active |
| Literature ¹ | • Technical Datasheet |
| UL Yellow Card ² | • E45329-101519378 |
| Search for UL Yellow Card | • SABIC Innovative Plastics Europe • NORYL™ |
| Availability | • Europe |
| Filler / Reinforcement | • Glass Fiber, 20% Filler by Weight |
| Features | • Hydrolytically Stable |
| Uses | • Potable Water Applications |
| Agency Ratings | • ACS Unspecified Rating • DVGW W270 • EU Food Contact, Unspecified Rating • FDA Food Contact, Unspecified Rating • KTW Unspecified Rating • NSF 61 • WRAS Unspecified Rating |
| RoHS Compliance | • RoHS Compliant |
| Processing Method | • Injection Molding |

| Physical | Nominal Value Unit | Test Method |
|---|-----------------------------|-----------------|
| Density | 1.24 g/cm ³ | ISO 1183 |
| Melt Volume-Flow Rate (MVR) (280°C/10.0 kg) | 22.0 cm ³ /10min | ISO 1133 |
| Molding Shrinkage | | Internal Method |
| Flow : 3.20 mm | 0.20 to 0.40 % | |
| Across Flow : 3.20 mm | 0.30 to 0.60 % | |
| Water Absorption | | |
| Saturation, 23°C | 0.20 % | ISO 62 |
| Equilibrium, 50% RH | 0.060 % | ASTM D570 |

| Mechanical | Nominal Value Unit | Test Method |
|----------------------------------|--------------------|-------------|
| Tensile Modulus | | |
| -- ⁴ | 7110 MPa | ASTM D638 |
| -- | 7180 MPa | ISO 527-2/1 |
| Tensile Strength | | |
| Break ⁵ | 119 MPa | ASTM D638 |
| Break | 119 MPa | ISO 527-2/5 |
| Tensile Elongation | | |
| Break ⁵ | 2.6 % | ASTM D638 |
| Break | 2.6 % | ISO 527-2/5 |
| Flexural Modulus | | |
| 50.0 mm Span ⁶ | 6970 MPa | ASTM D790 |
| -- ⁷ | 6040 MPa | ISO 178 |
| Flexural Strength | | |
| -- ^{7, 8} | 165 MPa | ISO 178 |
| Break, 50.0 mm Span ⁶ | 175 MPa | ASTM D790 |

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| Impact | Nominal Value Unit | Test Method |
|--|-----------------------|--------------|
| Charpy Notched Impact Strength | | |
| -30°C ⁹ | 5.0 kJ/m ² | ISO 179/1eA |
| -30°C | 27 kJ/m ² | ISO 179/2C |
| 23°C | 6.0 kJ/m ² | ISO 179/2C |
| Charpy Unnotched Impact Strength ⁹ (23°C) | 30 kJ/m ² | ISO 179/1eU |
| Notched Izod Impact | | |
| -30°C | 45 J/m | ASTM D256 |
| 23°C | 65 J/m | ASTM D256 |
| -30°C ¹⁰ | 4.0 kJ/m ² | ISO 180/1A |
| 23°C ¹⁰ | 6.0 kJ/m ² | ISO 180/1A |
| Unnotched Izod Impact | | |
| -30°C | 400 J/m | ASTM D4812 |
| 23°C | 400 J/m | ASTM D4812 |
| -30°C ¹⁰ | 23 kJ/m ² | ISO 180/1U |
| 23°C ¹⁰ | 25 kJ/m ² | ISO 180/1U |
| Thermal | Nominal Value Unit | Test Method |
| Heat Deflection Temperature | | |
| 0.45 MPa, Unannealed, 100 mm Span ¹¹ | 132 °C | ISO 75-2/Be |
| 1.8 MPa, Unannealed, 3.20 mm | 135 °C | ASTM D648 |
| 1.8 MPa, Unannealed, 100 mm Span ¹¹ | 139 °C | ISO 75-2/Ae |
| Vicat Softening Temperature | | |
| -- | 150 °C | ISO 306/A50 |
| -- | 144 °C | ISO 306/B120 |
| CLTE | | ISO 11359-2 |
| Flow : -40 to 40°C | 0.000030 cm/cm/°C | |
| Transverse : -40 to 40°C | 0.000070 cm/cm/°C | |
| Injection | Nominal Value Unit | |
| Drying Temperature | 100 to 120 °C | |
| Drying Time | 2.0 to 4.0 hr | |
| Suggested Max Moisture | 0.020 % | |
| Hopper Temperature | 60.0 to 80.0 °C | |
| Rear Temperature | 250 to 270 °C | |
| Middle Temperature | 270 to 290 °C | |
| Front Temperature | 290 to 310 °C | |
| Nozzle Temperature | 280 to 300 °C | |
| Processing (Melt) Temp | 280 to 300 °C | |
| Mold Temperature | 80.0 to 120 °C | |

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Notes

¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

² A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL IDES continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

³ Typical properties: these are not to be construed as specifications.

⁴ 5.0 mm/min

⁵ Type I, 5.0 mm/min

⁶ 1.3 mm/min

⁷ 2.0 mm/min

⁸ Break

⁹ 80*10*4 sp=62mm

¹⁰ 80*10*4

¹¹ 120*10*4 mm

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SABIC Innovative Plastics Europe

Where to Buy

Supplier

SABIC Innovative Plastics Europe

, Netherlands

Telephone: +36-1-238-5060

Web: <http://www.sabic-ip.com/>

Distributor

GUZMAN GLOBAL S.L

Telephone: +34-963-992-400

Web: <http://www.grupoguzman.com/>

Availability: Italy, Portugal, Spain

Polymix

Telephone: +33-3-8920-1380

Web: <http://www.polymix.eu/>

Availability: France

RESINEX Group

RESINEX is a Pan European distribution company. Contact RESINEX for availability of individual products by country.

Telephone: +32-14-672511

Web: <http://www.resinex.com/>

Availability: Europe

Ultrapolymers

Ultrapolymers is a Pan European distribution company. Contact Ultrapolymers for availability of individual products by country.

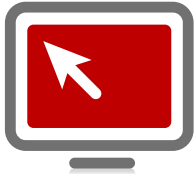
Telephone: +32-11-57-95-57

Web: <http://www.ultrapolymers.com/>

Availability: Belgium, Netherlands, South Africa



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Prospector is a searchable online database that includes 85,000 data sheets from 875 manufacturers and 44,000 UL yellow cards. Each data sheet includes property, processing and supplier contact information. Prospector is relied on by nearly 400,000 design engineers and plastics processors. Using Prospector, they save time with plastic material selection by quickly and easily referencing technical information critical to the success of their products.

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– Birgit Elvardt Bader, Production Manager, Micotron

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– Kevin Chase, Owner & President, Chase Plastics



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