

STYRON A-TECH™ 1175

Polystyrene Resin

Overview

STYRON A-TECH™ 1175 advanced technology polystyrene is a high impact, environmental stress crack resistant (ESCR) resin, designed for extrusion and thermoforming applications, especially for the refrigeration industry. Based on patented technology, this resin allows for potential downgauging and scrap reduction in the thermoforming process through its combination of properties like ESCR, rigidity and thermoforming.

Main characteristics:

- Allows for downgauging
- ESCR to food stuff and hydrocarbons
- Ease of processing in extrusion and thermoforming
- Excellent thermoforming behaviour
- Increased rigidity

Applications:

- Large Appliance / Refrigeration liners
- General extrusion / thermoforming applications requiring ESCR

Complies with:

- Europe REGULATION (EC) 10/2011
- FDA, 21 CFR 177.1640
- Consult the regulations for complete details.

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.04 g/cm ³	1.04 g/cm ³	ISO 1183
Apparent (Bulk) Density ¹	0.60 g/cm ³	0.60 g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	2.8 g/10 min	2.8 g/10 min	ISO 1133
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	239000 psi	1650 MPa	ISO 527-1/1
Tensile Strength			
Yield, Injection Molded ²	2180 psi	15.0 MPa	ASTM D638
Yield	2320 psi	16.0 MPa	ISO 527-2/5
Break, Injection Molded ²	3190 psi	22.0 MPa	ASTM D638
Break	3480 psi	24.0 MPa	ISO 527-2/5
Tensile Elongation			
Break, Injection Molded ²	60 %	60 %	ASTM D638
Break	60 %	60 %	ISO 527-2/5
Flexural Modulus			
Injection Molded	232000 psi	1600 MPa	ASTM D790
--	239000 psi	1650 MPa	ISO 178
Flexural Strength			
Injection Molded	5080 psi	35.0 MPa	ASTM D790
--	5510 psi	38.0 MPa	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			
73°F (23°C), Injection Molded	2.2 ft-lb/in	120 J/m	ASTM D256
73°F (23°C)	5.7 ft-lb/in ²	12 kJ/m ²	ISO 180/1A

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed	176 °F	80.0 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	158 °F	70.0 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	154 °F	68.0 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	190 °F	88.0 °C	ASTM D648
Vicat Softening Temperature	212 °F	100 °C	ISO 306/A120
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating ³ (0.04 in (1.0 mm))	HB	HB	UL 94

Additional Information

Mass balance versions (bio-based (BIO) or chemically recycled (CR)) of this product are chemically and physically indistinguishable to the standard fossil grade. This technical data sheet applies to all versions. Letters of sameness are available upon request.

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ Granulation 7

² 0.20 in/min (5.0 mm/min)

³ This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.

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