

Technical Data Sheet

Polytrope STR 1042EU-01 NATURAL

Enhanced TPO Polyolefin

LyondellBasell Industries

Engineering Plastics

Product Description

POLYTROPE STR 1042EU resin is a high melt strength thermoformable TPO that balances impact resistance and high stiffness, enabling processors and end users to reduce product weight and improve processing efficiency without sacrificing product performance. The attractive performance features of POLYTROPE STR 1042EU resin uniquely positions it as a economically favorable option to traditional engineered resins. It can be extruded in smooth or textured surfaces, or co-extruded with a POLYTROPE STR enhanced polyolefin cap resin to further customize its' durability, appearance, or feel for interior and exterior applications. The capability of POLYTROPE STR 1042EU to provide an exceptionally smooth surface in extrusion and thermoforming makes it well suited to lamination processes with decorative films. It is also easily colored and is paintable by standard TPO paint systems.

General

Features	• Good Melt Strength • Good Weather Resistance	• Low CLTE • Low Temperature Impact Resistance	• Paintable • Recyclable Material
Forms	• Pellets		
Processing Method	• Coextrusion • Extrusion	• Profile Extrusion • Sheet Extrusion	• Thermoforming

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity ¹	1.16	1.16 g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (230°C/2.16 Kg)	0.50 g/10 min	0.50 g/10 min	ISO 1133

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			
Yield	3320 psi	22.9 MPa	ASTM D638
Yield, 73°F (23°C) ²	3420 psi	23.6 MPa	ISO 527-2
Tensile Strain ² (Break, 451°F (233°C))	> 200 %	> 200 %	ISO 527-2
Flexural Modulus - Chord ³ (73°F (23°C))	364000 psi	2510 MPa	ISO 178

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179
-22°F (-30°C)	2.0 ft·lb/in ²	4.1 kJ/m ²	
73°F (23°C)	30 ft·lb/in ²	62 kJ/m ²	
Notched Izod Impact			
-22°F (-30°C)	1.0 ft·lb/in	53 J/m	ASTM D256
73°F (23°C)	16 ft·lb/in	860 J/m	ASTM D256
-22°F (-30°C)	2.2 ft·lb/in ²	4.7 kJ/m ²	ISO 180
73°F (23°C)	26 ft·lb/in ²	54 kJ/m ²	ISO 180
Instrumented Dart Impact			ASTM D3763
-22°F (-30°C), Total Energy, Ductile Failure	430 in·lb	48.6 J	

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 Psi (0.45 Mpa), Unannealed	237 °F	114 °C	ISO 75-2/Bf
264 Psi (1.8 Mpa), Unannealed	140 °F	60.2 °C	ISO 75-2/A
CLTE			ASTM E831
Flow : -22 To 212°F (-30 To 100°C)	2.5E-5 in/in/°F	4.5E-5 cm/cm/°C	
Transverse	7.4E-5 in/in/°F	1.3E-4 cm/cm/°C	

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating (0.13 In (3.2 Mm), All Colors)	HB	HB	UL 94

Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss			ISO 2813
60°, 125 Mil (3180 µm), Thermoformed, Smooth	20 to 40	20 to 40	

Notes

¹ Method A

² Type 1, 2.0 in/min (50 mm/min)

³ Type 1A, 0.079 in/min (2.0 mm/min)