

TPX™ RT31

Mitsui Chemicals America, Inc. - *Polymethylpentene Copolymer*

General Information

General			
Material Status	• Commercial: Active		
Availability	• North America		
Features	• High Stiffness	• Low Odor	
Appearance	• Clear/Transparent		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	• Profile Extrusion
	• Fiber (Spinning) Extrusion	• Pipe Extrusion	

Properties ¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.835		Internal Method
Melt Mass-Flow Rate (MFR) (260°C/5.0 kg)	21	g/10 min	Internal Method
Spiral Flow ²	20.1	in	Internal Method
Molding Shrinkage - Flow ³ (0.0787 in)	0.016	in/in	Internal Method
Molding Shrinkage - Across Flow ³ (0.0787 in)	0.013	in/in	Internal Method
Water Absorption (Saturation)	< 0.010	%	ASTM D570
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ⁴ (73°F, Injection Molded)	276000	psi	ASTM D638
Tensile Strength ⁴ (Yield, 73°F, Injection Molded)	4350	psi	ASTM D638
Tensile Strength ⁴ (Break, 73°F, Injection Molded)	3630	psi	ASTM D638
Tensile Elongation ⁴ (Break, 73°F, Injection Molded)	22	%	ASTM D638
Flexural Modulus ⁵ (0.126 in, Injection Molded, 2.01 in Span)	210000	psi	ASTM D790
Flexural Strength ⁵ (0.126 in, Injection Molded, 2.01 in Span)	5220	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (Injection Molded)	0.45	ft·lb/in	ASTM D256
Unnotched Izod Impact (73°F, Injection Molded)	0.19	ft·lb/in	ASTM D4812
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	83		ASTM D785
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load ⁶ (66 psi, Unannealed, 0.250 in)	261	°F	ASTM D648
Vicat Softening Temperature	334	°F	ASTM D1525 ⁷
Peak Crystallization Temperature (DSC)	450	°F	ASTM D3418
CLTE - Flow (14 to 320°F)	6.5E-5	in/in/°F	Internal Method
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁸ (0.0787 in)	> 1.0E+16	ohms·cm	ASTM D257
Dielectric Strength ⁸ (0.0787 in)	810	V/mil	ASTM D149
Dielectric Constant ⁸ (0.0787 in, 1 MHz)	2.11		ASTM D150
Optical	Nominal Value	Unit	Test Method
Refractive Index ⁹	1.462		ASTM D542
Light Transmittance (Injection Molded)	94.0	%	ASTM D1003
Haze (Injection Molded)	0.700	%	ASTM D1003

Processing Information

Injection	Nominal Value	Unit
Rear Temperature	518	°F



Middle Temperature	536 °F
Front Temperature	572 °F
Mold Temperature	68 to 140 °F
Injection Pressure	4350 to 5800 psi
Holding Pressure	4350 psi

Injection Notes

Zone 4 Temperature: 300°C		
Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	536	°F
Cylinder Zone 2 Temp.	554	°F
Cylinder Zone 3 Temp.	554	°F
Cylinder Zone 4 Temp.	554	°F
Adapter Temperature	554	°F
Die Temperature	554	°F

Notes

¹ Typical properties: these are not to be construed as specifications.
² Mold Temperature: 163°F, Melt Temperature: 590°F
³ 260 to 280°C
⁴ Type IV, 2.0 in/min
⁵ 0.051 in/min
⁶ 120°C/hr
⁷ Rate A (50°C/h), Loading 1 (10 N)
⁸ Injection Molded
⁹ Injection Molded, 2 mm, 589 nm wavelength

