

## Technical Data

### Product Description

TPX™  
RT18XB

TPX™ RT18XB is a Polymethylpentene Copolymer (PMP Copolymer) material. It is available in North America for extrusion, fiber (spinning) extrusion, injection molding, pipe extrusion, or profile extrusion. Primary attribute of TPX™ RT18XB: High Stiffness.

Generic  
PMP Copolymer

This data represents typical values that have been calculated from all products classified as: Generic PMP Copolymer

This information is provided for comparative purposes only.

General	TPX™ RT18XB	Generic PMP Copolymer
Manufacturer / Supplier	<ul style="list-style-type: none"> <li>Mitsui Chemicals America, Inc.</li> </ul>	<ul style="list-style-type: none"> <li>Generic</li> </ul>
Generic Symbol	<ul style="list-style-type: none"> <li>PMP Copolymer</li> </ul>	<ul style="list-style-type: none"> <li>PMP Copolymer</li> </ul>
Material Status	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>
Literature <sup>1</sup>	<ul style="list-style-type: none"> <li>Processing - Extrusion (English)</li> <li>Processing - Injection Molding (English)</li> <li>Technical Datasheet (English)</li> </ul>	--
UL Yellow Card <sup>2</sup>	<ul style="list-style-type: none"> <li>E52579-242974</li> </ul>	--
Search for UL Yellow Card	<ul style="list-style-type: none"> <li>Mitsui Chemicals America, Inc.</li> <li>TPX™</li> </ul>	--
Availability	<ul style="list-style-type: none"> <li>North America</li> </ul>	<ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> <li>Europe</li> <li>North America</li> </ul>
Features	<ul style="list-style-type: none"> <li>High Stiffness</li> </ul>	--
Appearance	<ul style="list-style-type: none"> <li>Clear - Blue Tint</li> </ul>	--
Forms	<ul style="list-style-type: none"> <li>Pellets</li> </ul>	--
Processing Method	<ul style="list-style-type: none"> <li>Extrusion</li> <li>Fiber (Spinning) Extrusion</li> <li>Injection Molding</li> <li>Pipe Extrusion</li> <li>Profile Extrusion</li> </ul>	--

Physical	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Density / Specific Gravity				
--	0.833	--	g/cm <sup>3</sup>	Internal Method
--	--	0.832 to 0.839	g/cm <sup>3</sup>	ASTM D792 ASTM D1505
Melt Mass-Flow Rate (MFR)				
260°C/5.0 kg	26	--	g/10 min	Internal Method
260°C/5.0 kg	--	9.0 to 180	g/10 min	ASTM D1238
Spiral Flow				
--	--	50.8 to 56.0	cm	
-- <sup>4</sup>	51.0	--	cm	Internal Method



Physical	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Molding Shrinkage				
Flow	--	1.5 to 1.7	%	ASTM D955
Flow : 2.00 mm <sup>5</sup>	1.6	--	%	Internal Method
Across Flow	--	1.3 to 1.4	%	ASTM D955
Across Flow : 2.00 mm <sup>5</sup>	1.3	--	%	Internal Method
Water Absorption				ASTM D570
Saturation	< 0.010	0.010 to 0.011	%	
Equilibrium	--	0.010 to 0.011	%	
Mechanical	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Tensile Modulus				ASTM D638
--	--	871 to 1910	MPa	
23°C, Injection Molded <sup>6</sup>	1900	--	MPa	
Tensile Strength				ASTM D638
Yield	--	20.6 to 30.2	MPa	
Yield, 23°C, Injection Molded <sup>6</sup>	30.0	--	MPa	
Break	--	9.85 to 25.2	MPa	
Break, 23°C, Injection Molded <sup>6</sup>	25.0	--	MPa	
Tensile Elongation				ASTM D638
Break	--	7.0 to 90	%	
Break, 23°C, Injection Molded <sup>6</sup>	22	--	%	
Flexural Modulus				ASTM D790
--	--	475 to 1620	MPa	
3.20 mm, Injection Molded, 51.0 mm Span <sup>7</sup>	1450	--	MPa	
Flexural Strength				ASTM D790
--	--	17.3 to 40.9	MPa	
3.20 mm, Injection Molded, 51.0 mm Span <sup>7</sup>	36.0	--	MPa	
Impact	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Notched Izod Impact				ASTM D256
--	--	10 to 49	J/m	
Injection Molded	24	--	J/m	
Unnotched Izod Impact				ASTM D4812
--	--	8.0 to 22	J/m	
23°C, Injection Molded	10	--	J/m	
Unnotched Izod Impact (Area)				ASTM D256
--	--	8.00 to 22.4	kJ/m <sup>2</sup>	
Hardness	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Rockwell Hardness				ASTM D785
--	--	50 to 90		
R-Scale	83	--		



Thermal	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Deflection Temperature Under Load				ASTM D648
0.45 MPa, Unannealed	--	91.3 to 128	°C	
0.45 MPa, Unannealed, 6.35 mm <sup>8</sup>	127	--	°C	
Vicat Softening Temperature				
--	--	147 to 169	°C	ASTM D1525
--	168	--	°C	ASTM D1525 <sup>9</sup>
Peak Melting Temperature	--	224 to 232	°C	ASTM D3418
Peak Crystallization Temperature (DSC)	232	224 to 232	°C	ASTM D3418
CLTE - Flow				
--	--	1.2E-4	cm/cm/°C	ASTM E831
-10 to 160°C	1.2E-4	--	cm/cm/°C	Internal Method
Electrical	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Volume Resistivity				ASTM D257
--	--	9.8E+15 to 1.0E+16	ohms·cm	
2.00 mm <sup>10</sup>	> 1.0E+16	--	ohms·cm	
Dielectric Strength				ASTM D149
--	--	32	kV/mm	
2.00 mm <sup>10</sup>	32	--	kV/mm	
Dielectric Constant				ASTM D150
--	--	2.11 to 2.15		
2.00 mm, 1 MHz <sup>10</sup>	2.11	--		
Optical	TPX™ RT18XB	Generic PMP Copolymer	Unit	Test Method
Refractive Index				ASTM D542
-- <sup>11</sup>	1.462	--		
--	--	1.462 to 1.463		
Light Transmittance				ASTM D1003
Injection Molded	94.0	--	%	
--	--	93.0 to 94.0	%	
Haze				ASTM D1003
--	--	0.700 to 1.72	%	
Injection Molded	0.700	--	%	
Injection	TPX™ RT18XB	Generic PMP Copolymer	Unit	
Rear Temperature	270	--	°C	
Middle Temperature	280	--	°C	
Front Temperature	300	--	°C	
Mold Temperature	20 to 60	--	°C	
Injection Pressure	30.0 to 40.0	--	MPa	
Holding Pressure	30.0	--	MPa	
Injection Notes				
TPX™ RT18XB	Zone 4 Temperature: 300°C			



Extrusion	TPX™ RT18XB	Generic PMP Copolymer	Unit
Cylinder Zone 1 Temp.	280	--	°C
Cylinder Zone 2 Temp.	290	--	°C
Cylinder Zone 3 Temp.	290	--	°C
Cylinder Zone 4 Temp.	290	--	°C
Adapter Temperature	290	--	°C
Die Temperature	290	--	°C

**Notes**

<sup>1</sup> 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.

<sup>2</sup> A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector 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.

<sup>3</sup> Typical properties: these are not to be construed as specifications.

<sup>4</sup> Mold Temperature: 73°C, Melt Temperature: 310°C

<sup>5</sup> 260 to 280°C

<sup>6</sup> Type IV, 50 mm/min

<sup>7</sup> 1.3 mm/min

<sup>8</sup> 120°C/hr

<sup>9</sup> Rate A (50°C/h), Loading 1 (10 N)

<sup>10</sup> Injection Molded

<sup>11</sup> Injection Molded, 2 mm, 589 nm wavelength

