

## Solvay Specialty Polymers Torlon® 4275 Polyamide-imide (PAI) (Unverified Data\*\*)

Category : Polymer , Thermoplastic , Polyamide-imide (PAI) , Polyamide-Imide, Extruded

### Material Notes:

Torlon 4275 is a wear-resistant grade of polyamide-imide (PAI). This grade offers an excellent balance of mechanical properties and wear resistance. It offers high tensile strength and modulus with a low coefficient of friction and outstanding wear resistance at both high velocity and high pressure conditions. Torlon PAI has the highest strength and stiffness of any thermoplastic up to 275°C (525°F). It has outstanding resistance to wear, creep and chemicals. Potential applications for Torlon 4275 polyamide-imide include thrust washers, spline liners, valve seats, bushings, bearings, wear rings, cams and other applications requiring strength at high temperature and resistance to wear. Injection Notes: Minimum drying conditions: 3 hours at 350°F (177°C), 4 hours at 300°F (149°C), or 16 hours at 250°F (121°C). Compression Ratio: 1:1 to 1.5:1 Begin hold pressure at a high setting 6,000-8,000 psi (41.37-55.16 MPa), for several seconds, then drop off to 3,000-5,000 psi (20.69-34.48 MPa), for the duration of the hold pressure sequence. Molded parts must be post cured. Information provided by Solvay Specialty Polymers.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-Torlon-4275-Polyamide-imide-PAI-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Torlon-4275-Polyamide-imide-PAI-nbspUnverified-Data.php)

Physical Properties	Metric	English	Comments
Specific Gravity	1.51 g/cc	1.51 g/cc	ASTM D792
Water Absorption	0.33 %	0.33 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Linear Mold Shrinkage, Flow	0.0025 - 0.0045 cm/cm	0.0025 - 0.0045 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Tensile Strength	117 MPa	17000 psi	ASTM D638
Tensile Stress	131 MPa	19000 psi	ASTM D1708
Elongation at Break	2.6 %	2.6 %	ASTM D638
	7.0 %	7.0 %	ASTM D1708
Tensile Modulus	7.79 GPa	1130 ksi	ASTM D1708
	8.83 GPa	1280 ksi	ASTM D638
Flexural Strength	110 MPa	16000 psi	ASTM D790
	@Temperature 232 °C	@Temperature 450 °F	
	208 MPa	30200 psi	ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	5.10 GPa	740 ksi	

Flexural Modulus Mechanical Properties	Metric @ Temperature 232 °C	English @ Temperature 450 °F	ASTM D790 Comments
	7.31 GPa	1060 ksi	ASTM D790
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Compressive Strength	123 MPa	17800 psi	ASTM D695
Compressive Modulus	4.00 GPa	580 ksi	ASTM D695
Izod Impact, Notched	0.850 J/cm	1.59 ft-lb/in	ASTM D256
	2.70 J/cm	5.06 ft-lb/in	ASTM D256
Coefficient of Friction, Dynamic	0.050	0.050	Lubricated: 4 m/s, 5.2 MPa; ASTM D1894
	0.15	0.15	Lubricated: 0.25 m/s, 6.9 MPa; ASTM D1894
	0.29	0.29	Dry: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi); ASTM D3702
	0.31	0.31	Dry: 0.25 m/s, 3.4 MPa (50 fpm, 500 psi); ASTM D3702
K (wear) Factor	1.41 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	0.700 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Lubricated: 4 m/s, 5.2 MPa (800 fpm, 750 psi); ASTM D3702
	14.1 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	7.00 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Lubricated: 0.375 m/s, 6.9 MPa (75 fpm, 1000 psi); ASTM D3702
	26.2 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	13.0 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Dry: 0.25 m/s, 3.4 MPa (50 fpm, 500 psi)
	35.3 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	17.5 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Dry: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi); ASTM D3702

Thermal Properties	Metric	English	Comments
CTE, linear	25.0 µm/m-°C	13.9 µin/in-°F	ASTM D696
Thermal Conductivity	0.650 W/m-K	4.51 BTU-in/hr-ft <sup>2</sup> -°F	ASTM C177
Deflection Temperature at 1.8 MPa (264 psi)	280 °C	536 °F	Unannealed; ASTM D648

Electrical Properties	Metric	English	Comments
Volume Resistivity	8.00e+15 ohm-cm	8.00e+15 ohm-cm	ASTM D257
Surface Resistance	4.00e+17 ohm	4.00e+17 ohm	ASTM D257

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	304 °C	579 °F	

Processing Properties	Metric	English	Comments
Mold Temperature	199 - 216 °C	390 - 421 °F	
Drying Temperature	177 °C	351 °F	
Dry Time	3.00 hour	3.00 hour	
Moisture Content	0.050 %	0.050 %	
Back Pressure	6.89 MPa	999 psi	
Screw Speed	50 - 100 rpm	50 - 100 rpm	

Descriptive Properties	Value	Comments
Additive	PTFE + Graphite Lubricant	
Automotive Specifications	ASTM D4000 PAI000 L23 A22334 GA15 DZ1Z2Z3Z4Z5, Dwg 3C3P-7D019-BA	
	CHRYSLER MS-DB405 CPN3373	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	North America	
	South America	
Features	Flame Retardant	
	Good Chemical Resistance	
	Good Creep Resistance	
	Good Wear Resistance	
	High Heat Resistance	
	High Temperature Strength	
	Low Friction	
	Self Lubricating	
	Semi Conductive	
Forms	Pellets	
Generic	PAI	

Descriptive Properties	Injection Molding Value	Comments
	Machining	
	Profile Extrusion	
RoHS Compliance	RoHS Compliant	
Screw L/D Ratio	18.0:1.0 to 24.0:1.0	
Uses	Aerospace Applications	
	Aircraft Applications	
	Automotive Applications	
	Bearings	
	Bushings	
	Gears	
	Industrial Applications	
	Industrial Parts	
	Machine/Mechanical Parts	
	Metal Replacement	
	Rollers	
	Sealing Devices	
	Seals	
	Thrust Washer	
	Transmission Applications	
	Washer	

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