Torlon® 4275

Polyamide-imide

Solvay Specialty Polymers

Message:

Torlon 4275 is a wear-resistant polyamide-imide (PAI). The mechanical properties and wear resistance of this grade resin have achieved an excellent balance. It has high flexural strength and compressive strength, low friction coefficient and excellent wear resistance under high flow rate and high pressure conditions. Torlon PAI has the highest strength and rigidity among all thermoplastic resins that can withstand high temperatures of 275 °C(525 °F). And has excellent wear resistance, creep resistance and chemical resistance. Torlon 4275 polyamide-imide resin can be used in thrust washers, spline liners, valve seats, bushings, bearings, wear rings, cams and other products that need to maintain strength and wear resistance under high temperature conditions.

General Information	
Additive	PTFE graphite lubricant
Features	Semi-conductive Low friction coefficient High temperature strength Good creep resistance Good chemical resistance Good wear resistance Heat resistance, high Self-lubricating Flame retardancy
Uses	Bushing Gear Transfer application Washer Aircraft applications Industrial components Industrial application Roller Aerospace applications Machine/mechanical parts Metal substitution Seals Sealing device Application in Automobile Field Thrust washer Bearing
RoHS Compliance	RoHS compliance
Forms	Particle

Processing Method	Machining Profile extrusion molding Injection molding

Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.51	g/cm³	ASTM D792
Molding Shrinkage - Flow	0.25 - 0.45	%	ASTM D955
Water Absorption (24 hr)	0.33	%	ASTM D570
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			
-- [1]	7790	MPa	ASTM D1708
--	8830	MPa	ASTM D638
Tensile Strength	117	MPa	ASTM D638
Tensile Stress [2]	131	MPa	ASTM D1708
Tensile Elongation			
Fracture [3]	7.0	%	ASTM D1708
Fracture	2.6	%	ASTM D638
Flexural Modulus			ASTM D790
23°C	7310	MPa	ASTM D790
232°C	5100	MPa	ASTM D790
Flexural Strength			ASTM D790
23°C	208	MPa	ASTM D790
232°C	110	MPa	ASTM D790
Compressive Modulus	4000	MPa	ASTM D695
Compressive Strength	123	MPa	ASTM D695
Coefficient of Friction			
-- [4]	0.15		ASTM D1894
-- [5]	0.050		ASTM D1894
-- [6]	0.31		ASTM D3702
-- [7]	0.29		ASTM D3702
Wear Factor			ASTM D3702
5.2 MPa, 0.38 m/sec [8]	1.4	10^-8 mm³/N·m	ASTM D3702
6.9 MPa, 0.38 m/sec [9]	14	10^-8 mm³/N·m	ASTM D3702
3.4 MPa, 0.25 m/sec [10]	26	10^-8 mm³/N·m	ASTM D3702
0.22 MPa, 4.1 m/sec [11]	35	10^-8 mm³/N·m	ASTM D3702
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact	85	J/m	ASTM D256
Unnotched Izod Impact	270	J/m	ASTM D256
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (1.8 MPa, Unannealed)	280	°C	ASTM D648

Thermal Conductivity	0.65	W/m/K	ASTM C177
Coefficient of Linear Thermal Expansion	2.5E-5	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	4.0E+17	ohms	ASTM D257
Volume Resistivity	8.0E+15	ohms·cm	ASTM D257
Injection	**Nominal Value**	**Unit**	
Drying Temperature	177	°C	
Drying Time	3.0	hr	
Suggested Max Moisture	0.050	%	
Rear Temperature	304	°C	
Nozzle Temperature	371	°C	
Mold Temperature	199 - 216	°C	
Back Pressure	6.89	MPa	
Screw Speed	50 - 100	rpm	
Screw L/D Ratio	18.0:1.0 - 24.0:1.0		

Injection instructions

最低干燥条件:350 °F (177 ° C)温度下3小时, 300 °F (149°C)温度下4小时,或250 °F (121 °C)温度下16小时. 压缩比:1:1~1.5:1
开始时,压力保持在较高的设定值6,000-8,000 psi(41.37-55.16MPa) ,几秒钟后,降至~3,000-5,000psi(20.69-34.48MPa) ,进行保压. 成型部件需进行后固化.

NOTE			
1.	Previously, ASTM standard test method D1708 was used to measure the tensile properties of PAI and similar materials because small samples can save materials. The most widely used now is the ASTM D638 1 Bar specimen. The D1708 value contained is only used as a historical reference and is not used for comparison with the D638 value.		
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4.	Lubrication: 0.25 m/s, 6.9 MPa (75 fpm, 1000 psi)
5.	Lubrication: 4 m/s, 5.2 MPa (800 fpm, 750 psi)
6.	Drying: 0.25 m/s, 3.4 MPa (50 fpm, 500 psi)
7.	Drying: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi)
8.	Lubrication
9.	Lubrication
10.	Dry
11.	Dry

Recommended distributors for this material

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