Torlon® 4435

Polyamide-imide

Solvay Specialty Polymers

Message:

Torlon 4435 polyamide-imide resin is specially developed for non-lubricating products with very low friction resistance in high pressure and high speed (PV) environments. Torlon 4435 is not only especially suitable for products that cannot be lubricated or do not need lubrication, but also provides additional safety margin for lubrication systems that have lost lubricating oil. The material has outstanding bending strength and compressive rigidity ranging from low temperature to high temperature, and can be used for products that need to bear weight. The coefficient of thermal expansion is low and has the ability to meet tight tolerance requirements in a wide temperature range. Due to its electrical dissipation characteristics, this brand can also be considered for anti-static purposes. Torlon 4435 can be specifically used for thrust washers, sealing rings, sliding blades, spools, bushings, clutch rollers and pistons. It can be injection molded into complex shapes. High mobility: Torlon 4435-HF

General Information	
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
	Cam
	Thrust washer
	Bearing

RoHS Compliance	RoHS compliance
Forms	Particle
Processing Method	Machining
	Profile extrusion molding

Injection molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.59	g/cm³	ASTM D792
Molding Shrinkage - Flow	0.14	%	ASTM D955
Water Absorption (24 hr)	0.12	%	ASTM D570
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
	9720	MPa	ASTM D1708
	14500	MPa	ASTM D638
Tensile Strength	93.8	MPa	ASTM D638
Tensile Stress	110	MPa	ASTM D1708
Tensile Elongation			
Fracture ¹	6.0	%	ASTM D1708
Fracture	1.0	%	ASTM D638
Flexural Modulus			ASTM D790
23°C	14500	MPa	ASTM D790
232°C	10300	MPa	ASTM D790
Flexural Strength			ASTM D790
23°C	152	MPa	ASTM D790
232°C	89.6	MPa	ASTM D790
Compressive Modulus	8550	MPa	ASTM D695
Compressive Strength	138	MPa	ASTM D695
Poisson's Ratio	0.42		
Coefficient of Friction			ASTM D3702
2	0.27		ASTM D3702
3	0.29		ASTM D3702
Wear Factor			ASTM D3702
Drying: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi)	17.0	in³∙min^-10/ft∙lb∙hr	ASTM D3702
Drying: 0.25 m/s, 3.4 MPa (50 fpm, 500			
psi)	21.0	in³∙min^-10/ft∙lb∙hr	ASTM D3702
Coefficient of Linear Thermal Expansion	1.4E-5	cm/cm/°C	ASTM D696
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	43	J/m	ASTM D256
Unnotched Izod Impact	220	J/m	ASTM D256
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	278	°C	ASTM D648

Thermal Conductivity	0.81	W/m/K	ASTM C177
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	6.0E+6	ohms	ASTM D257
Volume Resistivity	2.0E+7	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 温度下3小时, 300 °F 温度下4小时, 或250 °F 温度下16小时. 压缩比:1:1或1.5:1 开始时,压力保持在6,000-8,000 psi ,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

	Previously, ASTM standard test
	method D1708 was used to
	measure the tensile properties of
	PAI and similar materials because
	small samples can save more
	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
1.	value.
	Drying: 4 m/s, 0.2 MPa (800 fpm,
2.	31.25 psi)
	Drying: 0.25 m/s, 3.4 MPa (50 fpm,
3.	500 psi)

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