

Torlon® 4630

polyamide-imide

Torlon 4630 is an injection-moldable, wear-resistant grade of polyamide-imide (PAI), that has been formulated to give outstanding wear resistance in non-lubricated applications. 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 4630 polyamide-imide include thrust washers, seal rings, sliding vanes, bobbins, bushings, clutch rollers and pistons.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • North America	• South America
Additive	• PTFE + Graphite Lubricant		
Features	• Flame Retardant • Good Chemical Resistance • Good Creep Resistance	• Good Wear Resistance • High Heat Resistance • High Stiffness	• High Temperature Strength • Low Friction
Uses	• Automotive Applications	• Bearings	• Bushings
RoHS Compliance	• Contact Manufacturer		
Forms	• Pellets		
Processing Method	• Injection Molding	• Machining	• Profile Extrusion

Physical

	Typical Value	Unit	Test Method
Specific Gravity	1.56	g/cm ³	ASTM D792
Water Absorption (24 hr)	0.18	%	ASTM D570

Mechanical

	Typical Value	Unit	Test Method
Tensile Modulus	7450	MPa	ASTM D638
Tensile Strength	81.4	MPa	ASTM D638
Tensile Elongation (Break)	1.9	%	ASTM D638
Flexural Modulus	6830	MPa	ASTM D790
Flexural Strength	131	MPa	ASTM D790
Compressive Strength	99.3	MPa	ASTM D695

Coefficient of Friction

-- 1	0.15		ASTM D1894
-- 2	0.030		ASTM D1894
-- 3	0.32		ASTM D3702
-- 4	0.32		ASTM D3702

Wear Factor

Dry: 0.25 m/s, 3.4 MPa (50 fpm, 500 psi)	6.00	in ³ ·min ⁻¹ ·ft ⁻¹ ·lb ⁻¹ ·hr	ASTM D3702
Dry: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi)	13.5	in ³ ·min ⁻¹ ·ft ⁻¹ ·lb ⁻¹ ·hr	
Lubricated: 0.375 m/s, 6.9 MPa (75 fpm, 1000 psi)	11.0	in ³ ·min ⁻¹ ·ft ⁻¹ ·lb ⁻¹ ·hr	
Lubricated: 4 m/s, 5.2 MPa (800 fpm, 750 psi)	1.00	in ³ ·min ⁻¹ ·ft ⁻¹ ·lb ⁻¹ ·hr	

Impact

	Typical Value	Unit	Test Method
Notched Izod Impact	48	J/m	ASTM D256
Unnotched Izod Impact	160	J/m	ASTM D256

Thermal	Typical Value Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	279 °C	ASTM D648
Coefficient of Linear Thermal Expansion	3.6E-6 cm/cm/°C	ASTM D696

Injection	Typical 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 to 216 °C
Back Pressure	6.89 MPa
Screw Speed	50 to 100 rpm
Screw L/D Ratio	18.0:1.0 to 24.0:1.0

Injection Notes

Minimum drying times are: 3 hours at 350°F (177°C), 4 hours at 300°F (149°C), or 16 hours at 250°F (121°C).

Compression Ratio between 1:1 and 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.

Notes

Typical properties: these are not to be construed as specifications.

¹ Lubricated: 0.25 m/s, 6.9 MPa (75 fpm, 1000 psi)

² Lubricated: 4 m/s, 5.2 MPa (800 fpm, 750 psi)

³ Dry: 0.25 m/s, 3.4 MPa (50 fpm, 500 psi)

⁴ Dry: 4 m/s, 0.2 MPa (800 fpm, 31.25 psi)

www.SolvaySpecialtyPolymers.com

Contact Solvay Specialty Polymers

Europe, Middle East and Africa SpecialtyPolymers.EMEA@solvay.com

Americas SpecialtyPolymers.Americas@solvay.com

Asia and Australia SpecialtyPolymers.Asia@solvay.com

In Case of Accident

Europe & South America +44(0).1235.239.670 (CareChem 24)

North America +1.703.527.3887 (Chemtrec)
+1.800.424.9300 (Toll Free Chemtrec)

China & Taiwan +86.10.5100.3039 (CareChem 24)

East/South East Asia +65.3158.1074 (CareChem 24)

Product Information, Technical Assistance and MSDS

Europe +39.02.3835.1

Americas +1.770.772.8760
+1.800.621.4557

Japan +81.3.5425.4300

China & South East Asia +86.21.5080.5080

Material Safety Data Sheets (MSDS) are available by emailing us or contacting your sales representative. Always consult the appropriate MSDS before using any of our products.

Neither Solvay Specialty Polymers nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Solvay's products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Solvay's recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right.

All trademarks and registered trademarks are property of the companies that comprise the Solvay Group or their respective owners.
© 2012 Solvay Specialty Polymers. All rights reserved.

