Texin® 983A

Friday, October 14, 2022

Covestro - PUR - Thermoplastic Polyurethane Elastomer (Polyether)

General Information

Product Description

Texin 983A resin is a polyether-based thermoplastic polyurethane; it can be processed by injection molding or extrusion.

Properties / Applications:
Texin 983A resin offers outstanding abrasion resistance, impact strength, toughness, and flexibility. It also exhibits excellent hydrolytic stability. Texin 983A resin complies with FDA food-contact regulations 21 CFR 177.1680 (Polyurethane Resins) and 177.2600 (Rubber Articles Intended for Repeated Use), subject to the limitations of these and and other applicable regulations. Applications include belting, hose, seals and gaskets, tubing, cable jackets, hose jackets, athletic soles, casters, mine screens, film, and extruded profiles. As with any product, use of Texin 983A resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

General			
Material Status	• Commercial: Active		
Regional Availability	• Europe	• North America	
Features	• Abrasion Resistant • High Flexibility	• High Impact Resistance • High Toughness	• Hydrolytically Stable
Uses	• Belts/Belt Repair • Cable Jacketing • Film • Footwear	• Gaskets • Hose • Jacketing • Mining Applications	• Profiles • Seals • Tubing • Wheels
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties [1]

Physical	Typical Value (English)		Typical Value (SI)		Test Method
Density / Specific Gravity					
--	1.11		1.11		ASTM D792
--	1.10	g/cm³	1.10	g/cm³	ISO 1183
Molding Shrinkage					
Flow : 0.100 in (2.54 mm)	8.0E-3	in/in	0.80	%	ASTM D955
Across Flow : 0.100 in (2.54 mm)	8.0E-3	in/in	0.80	%	ASTM D955
Across Flow : 0.100 in (2.54 mm)	0.80	%	0.80	%	ISO 2577
Flow : 0.100 in (2.54 mm)	0.80	%	0.80	%	ISO 2577
Mechanical	**Typical Value (English)**		**Typical Value (SI)**		**Test Method**
Flexural Modulus					ASTM D790 ISO 178
-22°F (-30°C)	8560	psi	59.0	MPa	
73°F (23°C)	3900	psi	26.9	MPa	
Taber Abrasion Resistance					
1000 Cycles, 1000 g, H-18 Wheel	30.0	mg	30.0	mg	ASTM D1044
1000 Cycles, 1000 g, H-18 Wheel	30.0	mg	30.0	mg	ISO 4649

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Elastomers	Typical Value (English)		Typical Value (SI)		Test Method
Tensile Stress					ASTM D412 ISO 37
100% Strain	798	psi	5.50	MPa	
300% Strain	1200	psi	8.30	MPa	
Tensile Stress					
Break	4500	psi	31.0	MPa	ISO 37
--	4500	psi	31.0	MPa	ASTM D412
Tensile Elongation (Break)	670	%	670	%	ASTM D412 ISO 37
Tear Strength					
-- [2]	500	lbf/in	87.6	kN/m	ASTM D624
--	500	lbf/in	87.6	kN/m	ISO 34-1
Compression Set					ASTM D395B ISO 815
73°F (23°C), 22 hr	16	%	16	%	
158°F (70°C), 22 hr	40	%	40	%	

Hardness	Typical Value (English)		Typical Value (SI)		Test Method
Durometer Hardness (Shore A)	83		83		ASTM D2240 ISO 868

Thermal	Typical Value (English)		Typical Value (SI)		Test Method
Glass Transition Temperature	-50.8	°F	-46.0	°C	DMA
Vicat Softening Temperature	176	°F	80.0	°C	ISO 306/50 ASTM D1525 [3]

Additional Information	Typical Value (English)		Typical Value (SI)		Test Method
Bayshore Resistance	45	%	45	%	ASTM D2632

Processing Information

Injection	Typical Value (English)		Typical Value (SI)	
Drying Temperature - Desiccant Dryer	180 to 199	°F	82 to 93	°C
Drying Time - Desiccant Dryer	4.0	hr	4.0	hr
Suggested Max Moisture	< 0.030	%	< 0.030	%
Suggested Max Regrind	20	%	20	%
Rear Temperature	360 to 390	°F	182 to 199	°C
Middle Temperature	360 to 399	°F	182 to 204	°C
Front Temperature	360 to 410	°F	182 to 210	°C
Nozzle Temperature	370 to 415	°F	188 to 213	°C
Processing (Melt) Temp	370 to 399	°F	188 to 204	°C
Mold Temperature	61 to 109	°F	16 to 43	°C
Injection Pressure	8000 to 14000	psi	55.2 to 96.5	MPa
Injection Rate	Slow-Moderate		Slow-Moderate	
Back Pressure	< 800	psi	< 5.52	MPa
Screw Speed	40 to 80	rpm	40 to 80	rpm
Cushion	0.125	in	3.18	mm

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Extrusion	Typical Value (English)		Typical Value (SI)	
Drying Temperature	180 to 199	°F	82 to 93	°C
Drying Time	4.0	hr	4.0	hr
Suggested Max Moisture	< 0.030	%	< 0.030	%
Suggested Max Regrind	20	%	20	%
Cylinder Zone 1 Temp.	360 to 390	°F	182 to 199	°C
Cylinder Zone 2 Temp.	360 to 399	°F	182 to 204	°C
Cylinder Zone 3 Temp.	370 to 410	°F	188 to 210	°C
Melt Temperature	365 to 399	°F	185 to 204	°C
Die Temperature	365 to 399	°F	185 to 204	°C

Notes

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

[2] Die C

[3] Rate A (50°C/h)