Texin® 985

Bayer MaterialScience LLC - Thermoplastic Polyurethane Elastomer (Polyether)

Wednesday, August 23, 2006

General Information

General

Material Status	• Commercial: Active	
Availability	• North America	
Test Standards Available	• ASTM • ISO 10350	
Features	• Abrasion Resistance, Good • Bacteria Resistant • Chemical Resistance, Good • Hydrolytically Stable	• Paintable • Resilient • Strength, High
Uses	• Automotive Applications • Cams • Gears	• Hydraulic Applications • Parts, Machine/Mechanical • Sporting Goods
Agency Ratings	• FDA 21 CFR 177.1680 [1] • FDA 21 CFR 177.2600 [2] • NSF 61	
Appearance	• Colors Available	
Forms	• Pellets	
Processing Method	• Blow Molding • Extrusion • Extrusion, Film	• Extrusion, Profile • Extrusion, Sheet • Injection Molding

ASTM and ISO Properties [3]

Physical	Nominal Value	Unit	Test Method
Density -Specific Gravity	1.12	sp gr 23/23°C	ASTM D792
Mold Shrink, Linear-Flow (0.100 in)	0.0080	in/in	ASTM D955
Mold Shrink, Linear-Trans (0.100 in)	0.0080	in/in	ASTM D955

Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus	3900	psi	ASTM D790
Taber Abrasion Resistance (1000 Cycles) [4]	30.0	mg	ASTM D1044

Elastomers	Nominal Value	Unit	Test Method
Tensile Stress @ 50%	700	psi	ASTM D412
Tensile Stress @ 100%	800	psi	ASTM D412
Tensile Stress @ 300%	1200	psi	ASTM D412
Tensile Str @ Break Elast	5500	psi	ASTM D412
Elongation @ Break Elast	500	%	ASTM D412
Tear Strength (Die C)	500	lbf/in	ASTM D624
Compression Set (73 °F, 22.0 hr)	19	%	ASTM D395
Bashore Resilience	45	%	ASTM D2632

Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (A Scale)	86		ASTM D2240

Thermal	Nominal Value	Unit	Test Method
Brittle Temperature	-90.0	°F	ASTM D746
Glass Transition Temp	-51.0	°F	ASTM E1356
Vicat Softening Point (Rate A)	176	°F	ASTM D1525

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Additional Properties

The value listed as Taber Abrasion, ASTM D1044, was tested in accordance with ASTM D3489.
The value listed as Glass Transition Temperature, ASTM E1356, was tested using Dynamic Mechanical Analysis.
Compression Set, ASTM D395-B, As Molded, 22 hrs @ 158°F: 80%
Compression Set, ASTM D395-B, As Molded, 22 hrs @ 158°F, Postcured, 16 hrs @ 230°F: 40%
Compression Set, ASTM D395-B, As Molded, 22 hrs @ 73°F, Postcured, 16 hrs @ 230°F: 16%

ISO 10350 Properties [5]

Mechanical properties 23°C/50%r.h.	Nominal Value	Unit	Test Method
Stress at 50% strain	1700	psi	ISO 527-1, -2
Strain at break	> 50	%	ISO 527-1, -2

Thermal properties	Nominal Value	Unit	Test Method
Glass transistion temperature (10°C/min)	-51	°F	ISO 11357-1, -2
Vicat softening temperature (50°C/h 50N)	176	°F	ISO 306

Other properties	Nominal Value	Unit	Test Method
Density	0.0405	lb/in³	ISO 1183

Test specimen production	Nominal Value	Unit	Test Method
Processing conditions acc. ISO	ISO 7391-2		
Injection Molding, melt temperature	383	°F	ISO 294
Injection Molding, mold temperature	95.0	°F	ISO 10724
Injection Molding, pressure at hold	6530	psi	ISO 294

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	180 to 220	°F
Drying Time	1.0 to 3.0	hr
Suggested Max Moisture	0.030	%
Suggested Max Regrind	20	%
Rear Temperature	360 to 390	°F
Middle Temperature	360 to 400	°F
Front Temperature	360 to 410	°F
Nozzle Temperature	370 to 415	°F
Processing (Melt) Temp	395	°F
Mold Temperature	60.0 to 110	°F
Injection Pressure	6000 to 14000	psi
Screw Speed	40 to 80	rpm
Clamp Tonnage	3.0 to 5.0	tons/in²
Screw L/D Ratio	20.0:1.0	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

Notes

[1] When used unmodified for the manufacture of food contact articles, Texin® 985 will comply with Food Additive Regulations FDA 21 CFR 177.1680 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.

[2] When used unmodified for the manufacture of food contact articles, Texin® 985 will comply with Food Additive Regulations FDA 21 CFR 177.2600 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.

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

[4] 1000 gm, H-18 Wheel

[5] Typical properties: these are not to be construed as specifications. Additional ISO 10350 data and disclaimer information may be found on ISO 10350 Data Sheet.

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