

Texin® 285

Thermoplastic Polyurethane Elastomer (Polyester)

Covestro - PUR

PROSPECTOR®

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Technical Data

Product Description

Texin 285 resin is an aromatic polyester-based thermoplastic polyurethane with a Shore hardness of approximately 85A. It can be processed by injection molding, extrusion, and blow molding.

General

Material Status	• Commercial: Active
Literature ¹	• Processing - Extrusion (English) • Processing - Injection Molding (English) • Technical Datasheet (English)
Search for UL Yellow Card	• Covestro - PUR • Texin®
Availability	• North America
Features	• Good Abrasion Resistance • Good Flexibility • Good Impact Resistance • Good Toughness • Medium Clarity
Uses	• Blow Molding Applications • Cable Jacketing • Film • Footwear • Hose • Plastics Modification • Profiles • Seals • Tubing • Wheels
Agency Ratings	• FDA 21 CFR 177.1680 • FDA 21 CFR 177.2600
Appearance	• Natural Color
Processing Method	• Blow Molding • Extrusion • Injection Molding

Physical	Nominal Value Unit	Test Method
Specific Gravity	1.20 g/cm ³	ASTM D792 ISO 1183
Molding Shrinkage		ASTM D955 ISO 2577
Flow : 2.54 mm	0.80 %	
Across Flow : 2.54 mm	0.80 %	

Mechanical	Nominal Value Unit	Test Method
Flexural Modulus		ASTM D790 ISO 178
-30°C	49.6 MPa	
23°C	27.6 MPa	
Taber Abrasion Resistance		
1000 Cycles, 1000 g, H-18 Wheel	35.0 mg	ISO 4649
1000 Cycles, 1000 g, H-18 Wheel	35.0 mg	ASTM D1044

Elastomers	Nominal Value Unit	Test Method
Tensile Stress		
50% Strain	5.00 MPa	ISO 37 ASTM D412
100% Strain	5.30 MPa	ASTM D412 ISO 37
300% Strain	13.1 MPa	ASTM D412 ISO 37
Tensile Strength (Yield)	37.9 MPa	ASTM D412 ISO 37
Tensile Elongation (Break)	500 %	ASTM D412 ISO 37
Tear Strength		
-- ³	87.6 kN/m	ASTM D624
--	88 kN/m	ISO 34-1



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Elastomers	Nominal Value Unit	Test Method
Compression Set		ASTM D395B ISO 815
23°C, 22 hr ⁴	12 %	
23°C, 22 hr	16 %	
70°C, 22 hr ⁴	35 %	
70°C, 22 hr	65 %	
Bayshore Resilience	45 %	ASTM D2632
Hardness	Nominal Value Unit	Test Method
Durometer Hardness (Shore A)	85	ASTM D2240 ISO 868
Thermal	Nominal Value Unit	Test Method
Brittleness Temperature	< -68.0 °C	ASTM D746 ISO 974
Glass Transition Temperature	-42.0 °C	DMA
Vicat Softening Temperature	91.0 °C	ISO 306/50 ASTM D1525 ⁵
RTI Elec (1.50 mm)	50.0 °C	UL 746
RTI Imp (1.50 mm)	50.0 °C	UL 746
RTI Str (1.50 mm)	50.0 °C	UL 746
Aging	Nominal Value Unit	Test Method
Change in Tensile Strength in Air		
100°C, 70 hr	20 %	ASTM D573 ISO 216
100% Strain, 100°C, 70 hr	-2.0 %	ASTM D573
300% Strain, 100°C, 70 hr	14 %	ASTM D573
100°C, 168 hr	10 %	ASTM D573 ISO 216
100% Strain, 100°C, 168 hr	-1.0 %	ASTM D573
300% Strain, 100°C, 168 hr	12 %	ASTM D573
100°C, 336 hr	14 %	ASTM D573 ISO 216
100% Strain, 100°C, 336 hr	-2.0 %	ASTM D573
300% Strain, 100°C, 336 hr	9.0 %	ASTM D573
100°C, 504 hr	6.0 %	ASTM D573 ISO 216
100% Strain, 100°C, 504 hr	-3.0 %	ASTM D573
300% Strain, 100°C, 504 hr	12 %	ASTM D573
100% Strain 100°C, 70 hr	-2.0 %	ISO 216
300% Strain 100°C, 70 hr	14 %	ISO 216
100% Strain 100°C, 168 hr	-1.0 %	ISO 216
300% Strain 100°C, 168 hr	12 %	ISO 216
100% Strain 100°C, 336 hr	-2.0 %	ISO 216
300% Strain 100°C, 336 hr	9.0 %	ISO 216
100% Strain 100°C, 504 hr	-3.0 %	ISO 216
300% Strain 100°C, 504 hr	12 %	ISO 216
Change in Ultimate Elongation in Air		ASTM D573 ISO 216
100°C, 70 hr	5.0 %	
100°C, 168 hr	8.0 %	
100°C, 336 hr	16 %	
100°C, 504 hr	14 %	
Change in Durometer Hardness in Air		ASTM D573 ISO 216
Shore D, 100°C, 70 hr	-3.0	
Shore D, 100°C, 168 hr	-3.0	
Shore D, 100°C, 336 hr	-3.0	
Shore D, 100°C, 504 hr	-3.0	



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Aging	Nominal Value Unit	Test Method
Change in Tensile Strength		ASTM D471 ISO 175
23°C, 70 hr, in Reference Fuel A (Isooctane)	11 %	
100% Strain, 23°C, 70 hr, in Reference Fuel A (Isooctane)	-3.0 %	
300% Strain, 23°C, 70 hr, in Reference Fuel A (Isooctane)	-4.0 %	
23°C, 70 hr, in Reference Fuel C	-18 %	
100% Strain, 23°C, 70 hr, in Reference Fuel C	-7.0 %	
300% Strain, 23°C, 70 hr, in Reference Fuel C	-20 %	
23°C, 168 hr, in Reference Fuel A (Isooctane)	10 %	
100% Strain, 23°C, 168 hr, in Reference Fuel A (Isooctane)	-2.0 %	
300% Strain, 23°C, 168 hr, in Reference Fuel A (Isooctane)	-2.0 %	
23°C, 168 hr, in Reference Fuel C	-20 %	
100% Strain, 23°C, 168 hr, in Reference Fuel C	-6.0 %	
300% Strain, 23°C, 168 hr, in Reference Fuel C	-20 %	
23°C, 336 hr, in Reference Fuel A (Isooctane)	16 %	
100% Strain, 23°C, 336 hr, in Reference Fuel A (Isooctane)	7.0 %	
300% Strain, 23°C, 336 hr, in Reference Fuel A (Isooctane)	3.0 %	
23°C, 336 hr, in Reference Fuel C	-18 %	
100% Strain, 23°C, 336 hr, in Reference Fuel C	-7.0 %	
300% Strain, 23°C, 336 hr, in Reference Fuel C	-19 %	
23°C, 504 hr, in Reference Fuel A (Isooctane)	20 %	
100% Strain, 23°C, 504 hr, in Reference Fuel A (Isooctane)	1.0 %	
300% Strain, 23°C, 504 hr, in Reference Fuel A (Isooctane)	-1.0 %	
23°C, 504 hr, in Reference Fuel C	-18 %	
100% Strain, 23°C, 504 hr, in Reference Fuel C	-6.0 %	
300% Strain, 23°C, 504 hr, in Reference Fuel C	-18 %	
100°C, 70 hr, in ASTM #1 Oil	20 %	
100% Strain, 100°C, 70 hr, in ASTM #1 Oil	-5.0 %	
300% Strain, 100°C, 70 hr, in ASTM #1 Oil	10 %	
100°C, 70 hr, in ASTM #3 Oil	30 %	
100% Strain, 100°C, 70 hr, in ASTM #3 Oil	-8.0 %	
300% Strain, 100°C, 70 hr, in ASTM #3 Oil	12 %	
100°C, 168 hr, in ASTM #1 Oil	9.0 %	
100% Strain, 100°C, 168 hr, in ASTM #1 Oil	-1.0 %	
300% Strain, 100°C, 168 hr, in ASTM #1 Oil	10 %	
100°C, 168 hr, in ASTM #3 Oil	30 %	
100% Strain, 100°C, 168 hr, in ASTM #3 Oil	-6.0 %	
300% Strain, 100°C, 168 hr, in ASTM #3 Oil	13 %	
100°C, 336 hr, in ASTM #1 Oil	7.0 %	
100% Strain, 100°C, 336 hr, in ASTM #1 Oil	-2.0 %	
300% Strain, 100°C, 336 hr, in ASTM #1 Oil	10 %	
100°C, 336 hr, in ASTM #3 Oil	30 %	
100% Strain, 100°C, 336 hr, in ASTM #3 Oil	-9.0 %	
300% Strain, 100°C, 336 hr, in ASTM #3 Oil	7.0 %	
100°C, 504 hr, in ASTM #1 Oil	1.0 %	
100% Strain, 100°C, 504 hr, in ASTM #1 Oil	-4.0 %	
300% Strain, 100°C, 504 hr, in ASTM #1 Oil	10 %	
100°C, 504 hr, in ASTM #3 Oil	7.0 %	
100% Strain, 100°C, 504 hr, in ASTM #3 Oil	-6.0 %	
300% Strain, 100°C, 504 hr, in ASTM #3 Oil	9.0 %	



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Aging	Nominal Value Unit	Test Method
Change in Ultimate Elongation		ASTM D471 ISO 175
23°C, 70 hr, in Reference Fuel A (Isooctane)	6.0 %	
23°C, 70 hr, in Reference Fuel C	4.0 %	
23°C, 168 hr, in Reference Fuel A (Isooctane)	-7.0 %	
23°C, 168 hr, in Reference Fuel C	3.0 %	
23°C, 336 hr, in Reference Fuel A (Isooctane)	1.0 %	
23°C, 336 hr, in Reference Fuel C	4.0 %	
23°C, 504 hr, in Reference Fuel A (Isooctane)	1.0 %	
23°C, 504 hr, in Reference Fuel C	4.0 %	
100°C, 70 hr, in ASTM #1 Oil	18 %	
100°C, 70 hr, in ASTM #3 Oil	14 %	
100°C, 168 hr, in ASTM #1 Oil	18 %	
100°C, 168 hr, in ASTM #3 Oil	15 %	
100°C, 336 hr, in ASTM #1 Oil	29 %	
100°C, 336 hr, in ASTM #3 Oil	24 %	
100°C, 504 hr, in ASTM #1 Oil	29 %	
100°C, 504 hr, in ASTM #3 Oil	22 %	
Change in Durometer Hardness		ASTM D471 ISO 175
Shore D, 23°C, 70 hr, in Reference Fuel A (Isooctane)	-1.0	
Shore D, 23°C, 70 hr, in Reference Fuel C	-5.0	
Shore D, 23°C, 168 hr, in Reference Fuel A (Isooctane)	0.0	
Shore D, 23°C, 168 hr, in Reference Fuel C	-6.0	
Shore D, 23°C, 336 hr, in Reference Fuel A (Isooctane)	1.0	
Shore D, 23°C, 336 hr, in Reference Fuel C	-5.0	
Shore D, 23°C, 504 hr, in Reference Fuel A (Isooctane)	-1.0	
Shore D, 23°C, 504 hr, in Reference Fuel C	-4.0	
Shore D, 100°C, 70 hr, in ASTM #1 Oil	-3.0	
Shore D, 100°C, 70 hr, in ASTM #3 Oil	-1.0	
Shore D, 100°C, 168 hr, in ASTM #1 Oil	-3.0	
Shore D, 100°C, 168 hr, in ASTM #3 Oil	0.0	
Shore D, 100°C, 336 hr, in ASTM #1 Oil	-3.0	
Shore D, 100°C, 336 hr, in ASTM #3 Oil	1.0	
Shore D, 100°C, 504 hr, in ASTM #1 Oil	-3.0	
Shore D, 100°C, 504 hr, in ASTM #3 Oil	-1.0	
Change in Volume		ASTM D471 ISO 175
23°C, 70 hr, in Reference Fuel A	0.0 %	
23°C, 70 hr, in Reference Fuel C	23 %	
23°C, 168 hr, in Reference Fuel A	1.0 %	
23°C, 168 hr, in Reference Fuel C	24 %	
23°C, 336 hr, in Reference Fuel A	1.0 %	
23°C, 336 hr, in Reference Fuel C	24 %	
23°C, 504 hr, in Reference Fuel A	1.0 %	
23°C, 504 hr, in Reference Fuel C	24 %	
100°C, 70 hr, in ASTM #1 Oil	-1.0 %	
100°C, 70 hr, in ASTM #3 Oil	0.0 %	
100°C, 168 hr, in ASTM #1 Oil	-1.0 %	
100°C, 168 hr, in ASTM #3 Oil	1.0 %	
100°C, 336 hr, in ASTM #1 Oil	-1.0 %	
100°C, 336 hr, in ASTM #3 Oil	1.0 %	
100°C, 504 hr, in ASTM #1 Oil	-1.0 %	
100°C, 504 hr, in ASTM #3 Oil	1.0 %	



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Flammability	Nominal Value Unit	Test Method
Flame Rating		UL 94
1.50 mm	HB	
3.00 mm	V-2	

Additional Information	Nominal Value Unit	Test Method
Compressive Load		ASTM D575
10% Deflection	2.24 MPa	
15% Deflection	3.28 MPa	
2% Deflection	0.345 MPa	
20% Deflection	4.31 MPa	
25% Deflection	5.69 MPa	
5% Deflection	1.03 MPa	
50% Deflection	15.0 MPa	

Injection	Nominal Value Unit
Drying Temperature - Desiccant Dryer	100 to 110 °C
Drying Time - Desiccant Dryer	2.0 hr
Suggested Max Moisture	< 0.030 %
Suggested Shot Size	40 to 80 %
Suggested Max Regrind	20 %
Rear Temperature	180 to 200 °C
Middle Temperature	180 to 205 °C
Front Temperature	180 to 210 °C
Nozzle Temperature	185 to 210 °C
Processing (Melt) Temp	195 to 205 °C
Mold Temperature	15.0 to 40.0 °C
Injection Pressure	41.4 to 103 MPa
Injection Rate	Slow-Moderate
Back Pressure	1.38 MPa
Screw Speed	40 to 80 rpm
Clamp Tonnage	4.1 to 6.9 kN/cm ²
Cushion	< 3.18 mm
Screw L/D Ratio	20.0:1.0
Screw Compression Ratio	2.5:1.0 to 3.0:1.0

Injection Notes

- Hold Pressure: 60 to 80% of Injection Pressure
- Timers (per 0.125 in cross section):
- Boost: 5 to 10 sec
 - 2nd Stage: 10 to 30 sec
 - Cool: 30 to 50 sec

Extrusion	Nominal Value Unit
Drying Temperature	100 to 110 °C
Drying Time	2.0 hr
Cylinder Zone 1 Temp.	180 to 200 °C
Cylinder Zone 3 Temp.	180 to 205 °C
Cylinder Zone 5 Temp.	180 to 210 °C
Adapter Temperature	180 to 210 °C
Melt Temperature	190 to 205 °C
Die Temperature	185 to 210 °C



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Notes

¹ These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

² Typical properties: these are not to be construed as specifications.

³ Die C

⁴ Post-cured 16 hr at 230°F

⁵ Rate A (50°C/h)



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Where to Buy

Supplier

Covestro - PUR

Leverkusen, Germany

Telephone: +49-214-6009-2000

Web: <http://www.tpu.covestro.com/>

Distributor

Amco Polymers

Telephone: 800-262-6685

Web: <http://www.amcopolymers.com/>

Availability: North America

M. Holland Company

Telephone: 855-497-1403

Web: <http://www.mholland.com/>

Availability: Mexico, United States

Nexeo Solutions

Telephone: 888-594-6009

Web: <http://www.nexeosolutions.com/>

Availability: North America

PolyOne Distribution

PolyOne Distribution is a global distribution company. Contact PolyOne Distribution for availability of individual products by country.

Telephone: 800-894-4266

Web: <http://polyonedistribution.com/>

Availability: Global

