

Texin® 950

Thermoplastic Polyurethane Elastomer (Polyether)

Covestro - PUR

Message:

Texin 950 resin is an aromatic polyether-based thermoplastic polyurethane with a Shore hardness of approximately 50D. It can be processed by injection molding, extrusion, or blow molding.

General Information			
Features	Good Abrasion Resistance		
	Good Flexibility		
	Good Toughness		
	High ESCR (Stress Crack Resist.)		
	High Impact Resistance		
	Hydrolysis Resistant		
	Salt Water/Spray Resistant		
Uses	Connectors		
	Gaskets		
	Hose		
	Tubing		
Agency Ratings	FDA 21 CFR 177.1680		
	FDA 21 CFR 177.2600		
	NSF 61		
Appearance	Natural Color		
Processing Method	Blow Molding		
	Extrusion		
	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.15	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	%	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	50		ASTM D2240, ISO 868
Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus			ASTM D790, ISO 178
23°C	114	MPa	

70°C	46.9	MPa	
Taber Abrasion Resistance			
1000 Cycles, 1000 g, H-18 Wheel	75.0	mg	ISO 4649
1000 Cycles, 1000 g, H-18 Wheel	75.0	mg	ASTM D1044
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			
50% Strain	12.1	MPa	ISO 37, ASTM D412
100% Strain	13.8	MPa	ASTM D412, ISO 37
300% Strain	27.6	MPa	ASTM D412, ISO 37
Tensile Strength (Yield)	49.0	MPa	ASTM D412, ISO 37
Tensile Elongation (Break)	470	%	ASTM D412, ISO 37
Tear Strength			
-- ¹	131	kN/m	ASTM D624
--	130	kN/m	ISO 34-1
Compression Set			ASTM D395B, ISO 815
23°C, 22 hr ²	15	%	
23°C, 22 hr	20	%	
70°C, 22 hr ³	40	%	
70°C, 22 hr	70	%	
Bayshore Resilience	35	%	ASTM D2632
Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air			
100°C, 70 hr	2.0	%	ASTM D573, ISO 216
100% Strain, 100°C, 70 hr	4.0	%	ASTM D573
300% Strain, 100°C, 70 hr	2.0	%	ASTM D573
100°C, 168 hr	2.0	%	ASTM D573, ISO 216
100% Strain, 100°C, 168 hr	4.0	%	ASTM D573
300% Strain, 100°C, 168 hr	-1.0	%	ASTM D573
100°C, 336 hr	4.0	%	ASTM D573, ISO 216
100% Strain, 100°C, 336 hr	4.0	%	ASTM D573
300% Strain, 100°C, 336 hr	-2.0	%	ASTM D573
100°C, 504 hr	3.0	%	ASTM D573, ISO 216
100% Strain, 100°C, 504 hr	5.0	%	ASTM D573
300% Strain, 100°C, 504 hr	-3.0	%	ASTM D573
125°C, 70 hr	-11	%	ASTM D573, ISO 216
100% Strain, 125°C, 70 hr	1.0	%	ASTM D573
300% Strain, 125°C, 70 hr	-7.0	%	ASTM D573
125°C, 168 hr	-27	%	ASTM D573, ISO 216
100% Strain, 125°C, 168 hr	4.0	%	ASTM D573
300% Strain, 125°C, 168 hr	-18	%	ASTM D573
125°C, 336 hr	-40	%	ASTM D573, ISO 216
100% Strain, 125°C, 336 hr	0.0	%	ASTM D573

300% Strain, 125°C, 336 hr	-22	%	ASTM D573
125°C, 504 hr	-44	%	ASTM D573, ISO 216
100% Strain, 125°C, 504 hr	-5.0	%	ASTM D573
300% Strain, 125°C, 504 hr	-25	%	ASTM D573
100% Strain 100°C, 70 hr	4.0	%	ISO 216
300% Strain 100°C, 70 hr	2.0	%	ISO 216
100% Strain 100°C, 168 hr	4.0	%	ISO 216
300% Strain 100°C, 168 hr	-1.0	%	ISO 216
100% Strain 100°C, 336 hr	4.0	%	ISO 216
300% Strain 100°C, 336 hr	-2.0	%	ISO 216
100% Strain 100°C, 504 hr	5.0	%	ISO 216
300% Strain 100°C, 504 hr	-3.0	%	ISO 216
100% Strain 125°C, 70 hr	1.0	%	ISO 216
300% Strain 125°C, 70 hr	-7.0	%	ISO 216
100% Strain 125°C, 168 hr	4.0	%	ISO 216
300% Strain 125°C, 168 hr	-18	%	ISO 216
100% Strain 125°C, 336 hr	0.0	%	ISO 216
300% Strain 125°C, 336 hr	-22	%	ISO 216
100% Strain 125°C, 504 hr	-5.0	%	ISO 216
300% Strain 125°C, 504 hr	-25	%	ISO 216
Change in Ultimate Elongation in Air			ASTM D573, ISO 216
100°C, 70 hr	10	%	
100°C, 168 hr	15	%	
100°C, 336 hr	19	%	
100°C, 504 hr	16	%	
125°C, 70 hr	22	%	
125°C, 168 hr	29	%	
125°C, 336 hr	12	%	
125°C, 504 hr	9.0	%	
Change in Durometer Hardness in Air			ASTM D573, ISO 216
Shore D, 100°C, 70 hr	-1.0		
Shore D, 100°C, 168 hr	0.0		
Shore D, 100°C, 336 hr	-2.0		
Shore D, 100°C, 504 hr	-1.0		
Shore D, 125°C, 70 hr	1.0		
Shore D, 125°C, 168 hr	-1.0		
Shore D, 125°C, 336 hr	-1.0		
Shore D, 125°C, 504 hr	1.0		
Change in Tensile Strength			ASTM D471, ISO 175
23°C, 70 hr, in Reference Fuel A (Isooctane)	16	%	
100% Strain, 23°C, 70 hr, in Reference Fuel A (Isooctane)	-3.0	%	

300% Strain, 23°C, 70 hr, in Reference Fuel A (Isooctane)	0.0	%
23°C, 70 hr, in Reference Fuel C	-17	%
100% Strain, 23°C, 70 hr, in Reference Fuel C	-42	%
300% Strain, 23°C, 70 hr, in Reference Fuel C	-36	%
23°C, 168 hr, in Reference Fuel A (Isooctane)	16	%
100% Strain, 23°C, 168 hr, in Reference Fuel A (Isooctane)	6.0	%
300% Strain, 23°C, 168 hr, in Reference Fuel A (Isooctane)	2.0	%
23°C, 168 hr, in Reference Fuel C	-17	%
100% Strain, 23°C, 168 hr, in Reference Fuel C	-36	%
300% Strain, 23°C, 168 hr, in Reference Fuel C	-30	%
23°C, 336 hr, in Reference Fuel A (Isooctane)	7.0	%
100% Strain, 23°C, 336 hr, in Reference Fuel A (Isooctane)	1.0	%
300% Strain, 23°C, 336 hr, in Reference Fuel A (Isooctane)	3.0	%
23°C, 336 hr, in Reference Fuel C	-20	%
100% Strain, 23°C, 336 hr, in Reference Fuel C	-36	%
300% Strain, 23°C, 336 hr, in Reference Fuel C	-33	%
23°C, 504 hr, in Reference Fuel A (Isooctane)	13	%
100% Strain, 23°C, 504 hr, in Reference Fuel A (Isooctane)	-4.0	%
300% Strain, 23°C, 504 hr, in Reference Fuel A (Isooctane)	-4.0	%
23°C, 504 hr, in Reference Fuel C	-15	%
100% Strain, 23°C, 504 hr, in Reference Fuel C	-36	%
300% Strain, 23°C, 504 hr, in Reference Fuel C	-51	%
100°C, 70 hr, in ASTM #1 Oil	2.0	%
100% Strain, 100°C, 70 hr, in ASTM #1 Oil	7.0	%
300% Strain, 100°C, 70 hr, in ASTM #1 Oil	4.0	%
100°C, 70 hr, in ASTM #3 Oil	10	%
100% Strain, 100°C, 70 hr, in ASTM #3 Oil	2.0	%

300% Strain, 100°C, 70 hr, in ASTM #3 Oil	3.0	%
100°C, 168 hr, in ASTM #1 Oil	0.0	%
100% Strain, 100°C, 168 hr, in ASTM #1 Oil	4.0	%
300% Strain, 100°C, 168 hr, in ASTM #1 Oil	0.0	%
100°C, 168 hr, in ASTM #3 Oil	12	%
100% Strain, 100°C, 168 hr, in ASTM #3 Oil	-7.0	%
300% Strain, 100°C, 168 hr, in ASTM #3 Oil	-11	%
100°C, 336 hr, in ASTM #1 Oil	-2.0	%
100% Strain, 100°C, 336 hr, in ASTM #1 Oil	8.0	%
300% Strain, 100°C, 336 hr, in ASTM #1 Oil	0.0	%
100°C, 336 hr, in ASTM #3 Oil	-3.0	%
100% Strain, 100°C, 336 hr, in ASTM #3 Oil	-2.0	%
300% Strain, 100°C, 336 hr, in ASTM #3 Oil	-9.0	%
100°C, 504 hr, in ASTM #1 Oil	-3.0	%
100% Strain, 100°C, 504 hr, in ASTM #1 Oil	4.0	%
300% Strain, 100°C, 504 hr, in ASTM #1 Oil	-7.0	%
100°C, 504 hr, in ASTM #3 Oil	1.0	%
100% Strain, 100°C, 504 hr, in ASTM #3 Oil	-9.0	%
300% Strain, 100°C, 504 hr, in ASTM #3 Oil	-18	%
Change in Ultimate Elongation	ASTM D471, ISO 175	
23°C, 70 hr, in Reference Fuel A (Isooctane)	5.0	%
23°C, 70 hr, in Reference Fuel C	0.0	%
23°C, 168 hr, in Reference Fuel A (Isooctane)	7.0	%
23°C, 168 hr, in Reference Fuel C	-6.0	%
23°C, 336 hr, in Reference Fuel A (Isooctane)	3.0	%
23°C, 336 hr, in Reference Fuel C	-5.0	%
23°C, 504 hr, in Reference Fuel A (Isooctane)	8.0	%
23°C, 504 hr, in Reference Fuel C	-2.0	%
100°C, 70 hr, in ASTM #1 Oil	18	%
100°C, 70 hr, in ASTM #3 Oil	17	%
100°C, 168 hr, in ASTM #1 Oil	19	%

100°C, 168 hr, in ASTM #3 Oil	25	%	
100°C, 336 hr, in ASTM #1 Oil	23	%	
100°C, 336 hr, in ASTM #3 Oil	27	%	
100°C, 504 hr, in ASTM #1 Oil	32	%	
100°C, 504 hr, in ASTM #3 Oil	38	%	
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	-11		
Shore D, 23°C, 168 hr, in Reference Fuel A (Isooctane)	1.0		
Shore D, 23°C, 168 hr, in Reference Fuel C	-13		
Shore D, 23°C, 336 hr, in Reference Fuel A (Isooctane)	0.0		
Shore D, 23°C, 336 hr, in Reference Fuel C	-10		
Shore D, 23°C, 504 hr, in Reference Fuel A (Isooctane)	2.0		
Shore D, 23°C, 504 hr, in Reference Fuel C	-13		
Shore D, 100°C, 70 hr, in ASTM #1 Oil	0.0		
Shore D, 100°C, 70 hr, in ASTM #3 Oil	5.0		
Shore D, 100°C, 168 hr, in ASTM #1 Oil	2.0		
Shore D, 100°C, 168 hr, in ASTM #3 Oil	5.0		
Shore D, 100°C, 336 hr, in ASTM #1 Oil	0.0		
Shore D, 100°C, 336 hr, in ASTM #3 Oil	-4.0		
Shore D, 100°C, 504 hr, in ASTM #1 Oil	2.0		
Shore D, 100°C, 504 hr, in ASTM #3 Oil	-2.0		
Change in Volume			
23°C, 70 hr, in Reference Fuel A	0.0	%	ASTM D471, ISO 175
23°C, 70 hr, in Reference Fuel C	22	%	ASTM D471, ISO 175
23°C, 168 hr, in Reference Fuel A	1.0	%	ASTM D471, ISO 175
23°C, 168 hr, in Reference Fuel C	26	%	ASTM D471, ISO 175
23°C, 336 hr, in Reference Fuel A	1.0	%	ASTM D471, ISO 175
23°C, 336 hr, in Reference Fuel C	26	%	ASTM D471, ISO 175
23°C, 504 hr, in Reference Fuel A	1.0	%	ASTM D471, ISO 175
23°C, 504 hr, in Reference Fuel C	26	%	ASTM D471, ISO 175
100°C, 70 hr, in ASTM Oil #1	0.0	%	ASTM D471
100°C, 70 hr, in ASTM Oil #3	9.0	%	ASTM D471
100°C, 168 hr, in ASTM Oil #1	0.0	%	ASTM D471
100°C, 168 hr, in ASTM Oil #3	10	%	ASTM D471
100°C, 336 hr, in ASTM Oil #1	0.0	%	ASTM D471
100°C, 336 hr, in ASTM Oil #3	12	%	ASTM D471

100°C, 504 hr, in ASTM Oil #1	0.0	%	ASTM D471
100°C, 504 hr, in ASTM Oil #3	13	%	ASTM D471
100°C, 70 hr, in ASTM #1 Oil	0.0	%	ISO 175
100°C, 70 hr, in ASTM #3 Oil	9.0	%	ISO 175
100°C, 168 hr, in ASTM #1 Oil	0.0	%	ISO 175
100°C, 168 hr, in ASTM #3 Oil	10	%	ISO 175
100°C, 336 hr, in ASTM #1 Oil	0.0	%	ISO 175
100°C, 336 hr, in ASTM #3 Oil	12	%	ISO 175
100°C, 504 hr, in ASTM #1 Oil	0.0	%	ISO 175
100°C, 504 hr, in ASTM #3 Oil	13	%	ISO 175
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -68.0	°C	ASTM D746, ISO 974
Glass Transition Temperature	-27.0	°C	DMA
Vicat Softening Temperature	128	°C	ISO 306/50, ASTM D1525 ⁴
CLTE - Flow	1.3E-4	cm/cm/°C	ASTM D696
Additional Information	Nominal Value	Unit	Test Method
Compressive Load			ASTM D575
10% Deflection	5.52	MPa	
15% Deflection	7.58	MPa	
2% Deflection	1.03	MPa	
20% Deflection	10.3	MPa	
25% Deflection	12.4	MPa	
5% Deflection	2.93	MPa	
50% Deflection	31.0	MPa	
Injection	Nominal Value	Unit	
Drying Temperature - Desiccant Dryer	93.0 to 104	°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	182 to 199	°C	
Middle Temperature	182 to 204	°C	
Front Temperature	182 to 210	°C	
Nozzle Temperature	188 to 213	°C	
Processing (Melt) Temp	196 to 215	°C	
Mold Temperature	16.0 to 43.0	°C	
Injection Pressure	41.4 to 103	MPa	
Injection Rate	Moderate		
Holding Pressure	27.6 to 55.2	MPa	
Back Pressure	5.52	MPa	
Screw Speed	40 to 80	rpm	
Clamp Tonnage	4.1 to 6.9	kN/cm ²	

Cushion	3.18 to 6.35	mm
Screw L/D Ratio	20.0:1.0	
Screw Compression Ratio	2.5:1.0 to 3.0:1.0	
Extrusion	Nominal Value	Unit
Drying Temperature	93.0 to 104	°C
Drying Time	2.0	hr
Cylinder Zone 1 Temp.	182 to 199	°C
Cylinder Zone 2 Temp.	182 to 204	°C
Cylinder Zone 3 Temp.	182 to 210	°C
Melt Temperature	190 to 205	°C
Die Temperature	191 to 204	°C

NOTE

- | | |
|----|---------------------------|
| 1. | Die C |
| 2. | Post-cured 16 hr at 230°F |
| 3. | Post-cured 16 hr at 230°F |
| 4. | Rate A (50°C/h) |

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