



Wednesday, April 10, 2019

Texin® 245

Covestro - PUR -
Thermoplastic
Polyurethane Elastomer
(Polyester)

Units English ▼**Action** **Legend** ([Open](#))**General Information****Product Description**

Texin 245 resin is an aromatic polyester-based thermoplastic polyurethane with a Shore hardness of approximately 43D. It can be processed by injection molding; extrusion processes are not recommended.

General

Material Status	• Commercial: Active		
Availability	• Europe	• North America	
Features	• Abrasion Resistant	• Good Impact Resistance	• Oil Resistant
	• Fuel Resistant	• Good Toughness	
	• Good Flexibility	• Low Temperature Resistant	
Uses	• Gears	• Wheels	
Agency Ratings	• FDA 21 CFR 177.1680	• FDA 21 CFR 177.2600	
Processing Method	• Injection Molding		

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.21		ASTM D792
Density	1.21	g/cm ³	ISO 1183
Molding Shrinkage - Flow (0.100 in)	8.0E-3	in/in	ASTM D955
Molding Shrinkage - Across Flow (0.100 in)	8.0E-3	in/in	ASTM D955
Molding Shrinkage			ISO 2577
Across Flow : 0.100 in	0.80	%	
Flow : 0.100 in	0.80	%	
Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus			ASTM D790
73°F	9990	psi	
158°F	7500	psi	
Flexural Modulus			ISO 178
73°F	9990	psi	
158°F	7500	psi	
Taber Abrasion Resistance			
1000 Cycles, 1000 g, H-18 Wheel	70.0	mg	ISO 4649
1000 Cycles, 1000 g, H-18 Wheel	70.0	mg	ASTM D1044
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			
50% Strain	1100	psi	ISO 37
50% Strain	1100	psi	ASTM D412
Tensile Stress (100% Strain)	1310	psi	ASTM D412
Tensile Stress (100% Strain)	1310	psi	ISO 37
Tensile Stress (300% Strain)	3000	psi	ASTM D412
Tensile Stress (300% Strain)	3000	psi	ISO 37
Tensile Strength (Yield)	7900	psi	ASTM D412
Tensile Strength (Yield)	7900	psi	ISO 37
Tensile Elongation (Break)	500	%	ASTM D412
Tensile Elongation (Break)	500	%	ISO 37
Tear Strength ²	700	lbf/in	ASTM D624
Tear Strength	700	lbf/in	ISO 34-1
Compression Set			ASTM D395B
73°F, 22 hr ³	18	%	
73°F, 22 hr	18	%	
158°F, 22 hr ³	35	%	
158°F, 22 hr	43	%	
	35	%	

212°F, 22 hr ³			
212°F, 22 hr	60 %		
Compression Set			ISO 815
73°F, 22 hr	18 %		
73°F, 22 hr ³	18 %		
158°F, 22 hr	43 %		
158°F, 22 hr ³	35 %		
212°F, 22 hr	60 %		
212°F, 22 hr ³	35 %		
Bayshore Resilience	45 %		ASTM D2632
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
-22°F, 0.125 in	3.3	ft-lb/in	
73°F, 0.125 in	No Break		
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	43		ASTM D2240
Shore Hardness (Shore D)	43		ISO 868
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -90.4	°F	ASTM D746
Brittleness Temperature	< -90.4	°F	ISO 974
Glass Transition Temperature	-50.8	°F	DMA
Vicat Softening Temperature	298	°F	ASTM D1525 ⁴
Vicat Softening Temperature	298	°F	ISO 306/50
RTI Elec (0.06 in)	122	°F	UL 746
RTI Imp (0.06 in)	122	°F	UL 746
RTI Str (0.06 in)	122	°F	UL 746
Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air			ASTM D573
212°F, 70 hr	5.0 %		
100% Strain, 212°F, 70 hr	4.0 %		
300% Strain, 212°F, 70 hr	0.0 %		
212°F, 168 hr	9.0 %		
100% Strain, 212°F, 168 hr	3.0 %		
300% Strain, 212°F, 168 hr	2.0 %		
212°F, 336 hr	8.0 %		
100% Strain, 212°F, 336 hr	3.0 %		
300% Strain, 212°F, 336 hr	-4.0 %		
212°F, 504 hr	5.0 %		
100% Strain, 212°F, 504 hr	2.0 %		
300% Strain, 212°F, 504 hr	-1.0 %		
Change in Tensile Strength in Air			ISO 216
212°F, 70 hr	5.0 %		
100% Strain 212°F, 70 hr	4.0 %		
300% Strain 212°F, 70 hr	0.0 %		
212°F, 168 hr	9.0 %		
100% Strain 212°F, 168 hr	3.0 %		
300% Strain 212°F, 168 hr	2.0 %		
212°F, 336 hr	8.0 %		
100% Strain 212°F, 336 hr	3.0 %		
300% Strain 212°F, 336 hr	-4.0 %		
212°F, 504 hr	5.0 %		
100% Strain 212°F, 504 hr	2.0 %		
300% Strain 212°F, 504 hr	-1.0 %		
Change in Ultimate Elongation in Air			ASTM D573
212°F, 70 hr	0.0 %		
212°F, 168 hr	2.0 %		
212°F, 336 hr	2.0 %		
212°F, 504 hr	5.0 %		
Change in Tensile Strain at Break in Air			ISO 216
212°F, 70 hr	0.0 %		
212°F, 168 hr	2.0 %		
212°F, 336 hr	2.0 %		
212°F, 504 hr	5.0 %		
Change in Durometer Hardness in Air			ASTM D573
Shore D, 212°F, 70 hr	-3.0		
Shore D, 212°F, 168 hr	-4.0		
Shore D, 212°F, 336 hr	-4.0		
Shore D, 212°F, 504 hr	-5.0		

<u>Change in Shore Hardness in Air</u>	ISO 216
Shore D, 212°F, 70 hr	-3.0
Shore D, 212°F, 168 hr	-4.0
Shore D, 212°F, 336 hr	-4.0
Shore D, 212°F, 504 hr	-5.0
<u>Change in Tensile Strength</u>	ASTM D471
73°F, 70 hr, in Reference Fuel A (Isooctane)	1.0 %
100% Strain, 73°F, 70 hr, in Reference Fuel A (Isooctane)	1.0 %
300% Strain, 73°F, 70 hr, in Reference Fuel A (Isooctane)	3.0 %
73°F, 70 hr, in Reference Fuel C	-21 %
100% Strain, 73°F, 70 hr, in Reference Fuel C	-21 %
300% Strain, 73°F, 70 hr, in Reference Fuel C	-34 %
73°F, 168 hr, in Reference Fuel A (Isooctane)	6.0 %
100% Strain, 73°F, 168 hr, in Reference Fuel A (Isooctane)	-2.0 %
300% Strain, 73°F, 168 hr, in Reference Fuel A (Isooctane)	-5.0 %
73°F, 168 hr, in Reference Fuel C	-18 %
100% Strain, 73°F, 168 hr, in Reference Fuel C	-16 %
300% Strain, 73°F, 168 hr, in Reference Fuel C	-28 %
73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
100% Strain, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
300% Strain, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
73°F, 336 hr, in Reference Fuel C	-19 %
100% Strain, 73°F, 336 hr, in Reference Fuel C	-15 %
300% Strain, 73°F, 336 hr, in Reference Fuel C	-27 %
73°F, 504 hr, in Reference Fuel A (Isooctane)	7.0 %
100% Strain, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-1.0 %
300% Strain, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-3.0 %
73°F, 504 hr, in Reference Fuel C	-18 %
100% Strain, 73°F, 504 hr, in Reference Fuel C	-14 %
300% Strain, 73°F, 504 hr, in Reference Fuel C	-28 %
212°F, 70 hr, in ASTM #1 Oil	15 %
100% Strain, 212°F, 70 hr, in ASTM #1 Oil	-2.0 %
300% Strain, 212°F, 70 hr, in ASTM #1 Oil	2.0 %
212°F, 70 hr, in ASTM #3 Oil	14 %
100% Strain, 212°F, 70 hr, in ASTM #3 Oil	2.0 %
300% Strain, 212°F, 70 hr, in ASTM #3 Oil	11 %
212°F, 168 hr, in ASTM #1 Oil	1.0 %
100% Strain, 212°F, 168 hr, in ASTM #1 Oil	-1.0 %
300% Strain, 212°F, 168 hr, in ASTM #1 Oil	-2.0 %
212°F, 168 hr, in ASTM #3 Oil	18 %
100% Strain, 212°F, 168 hr, in ASTM #3 Oil	3.0 %
300% Strain, 212°F, 168 hr, in ASTM #3 Oil	10 %
212°F, 336 hr, in ASTM #1 Oil	-10 %
100% Strain, 212°F, 336 hr, in ASTM #1 Oil	-3.0 %
300% Strain, 212°F, 336 hr, in ASTM #1 Oil	-5.0 %

212°F, 336 hr, in ASTM #3 Oil	20 %
100% Strain, 212°F, 336 hr, in ASTM #3 Oil	4.0 %
300% Strain, 212°F, 336 hr, in ASTM #3 Oil	2.0 %
212°F, 504 hr, in ASTM #1 Oil	-14 %
100% Strain, 212°F, 504 hr, in ASTM #1 Oil	0.0 %
300% Strain, 212°F, 504 hr, in ASTM #1 Oil	-9.0 %
212°F, 504 hr, in ASTM #3 Oil	1.0 %
100% Strain, 212°F, 504 hr, in ASTM #3 Oil	2.0 %
300% Strain, 212°F, 504 hr, in ASTM #3 Oil	-2.0 %
Change in Tensile Stress	ISO 175
73°F, 70 hr, in Reference Fuel A (Isooctane)	1.0 %
100% Strain, 73°F, 70 hr, in Reference Fuel A (Isooctane)	1.0 %
300% Strain, 73°F, 70 hr, in Reference Fuel A (Isooctane)	3.0 %
73°F, 70 hr, in Reference Fuel C	-21 %
100% Strain, 73°F, 70 hr, in Reference Fuel C	-21 %
300% Strain, 73°F, 70 hr, in Reference Fuel C	-34 %
73°F, 168 hr, in Reference Fuel A (Isooctane)	6.0 %
100% Strain, 73°F, 168 hr, in Reference Fuel A (Isooctane)	-2.0 %
300% Strain, 73°F, 168 hr, in Reference Fuel A (Isooctane)	-5.0 %
73°F, 168 hr, in Reference Fuel C	-18 %
100% Strain, 73°F, 168 hr, in Reference Fuel C	-16 %
300% Strain, 73°F, 168 hr, in Reference Fuel C	-28 %
73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
100% Strain, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
300% Strain, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0 %
73°F, 336 hr, in Reference Fuel C	-19 %
100% Strain, 73°F, 336 hr, in Reference Fuel C	-15 %
300% Strain, 73°F, 336 hr, in Reference Fuel C	-27 %
73°F, 504 hr, in Reference Fuel A (Isooctane)	7.0 %
100% Strain, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-1.0 %
300% Strain, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-3.0 %
73°F, 504 hr, in Reference Fuel C	-18 %
100% Strain, 73°F, 504 hr, in Reference Fuel C	-14 %
300% Strain, 73°F, 504 hr, in Reference Fuel C	-28 %
212°F, 70 hr, in ASTM #1 Oil	15 %
100% Strain, 212°F, 70 hr, in ASTM #1 Oil	-2.0 %
300% Strain, 212°F, 70 hr, in ASTM #1 Oil	2.0 %
212°F, 70 hr, in ASTM #3 Oil	14 %
100% Strain, 212°F, 70 hr, in ASTM #3 Oil	2.0 %
300% Strain, 212°F, 70 hr, in ASTM #3 Oil	11 %
212°F, 168 hr, in ASTM #1 Oil	1.0 %
100% Strain, 212°F, 168 hr, in ASTM #1 Oil	-1.0 %
300% Strain, 212°F, 168 hr, in ASTM #1 Oil	-2.0 %

212°F, 168 hr, in ASTM #3 Oil	18 %
100% Strain, 212°F, 168 hr, in ASTM #3 Oil	3.0 %
300% Strain, 212°F, 168 hr, in ASTM #3 Oil	10 %
212°F, 336 hr, in ASTM #1 Oil	-10 %
100% Strain, 212°F, 336 hr, in ASTM #1 Oil	-3.0 %
300% Strain, 212°F, 336 hr, in ASTM #1 Oil	-5.0 %
212°F, 336 hr, in ASTM #3 Oil	20 %
100% Strain, 212°F, 336 hr, in ASTM #3 Oil	4.0 %
300% Strain, 212°F, 336 hr, in ASTM #3 Oil	2.0 %
212°F, 504 hr, in ASTM #1 Oil	-14 %
100% Strain, 212°F, 504 hr, in ASTM #1 Oil	0.0 %
300% Strain, 212°F, 504 hr, in ASTM #1 Oil	-9.0 %
212°F, 504 hr, in ASTM #3 Oil	1.0 %
100% Strain, 212°F, 504 hr, in ASTM #3 Oil	2.0 %
300% Strain, 212°F, 504 hr, in ASTM #3 Oil	-2.0 %
<u>Change in Ultimate Elongation</u>	ASTM D471
73°F, 70 hr, in Reference Fuel A (Isooctane)	-4.0 %
73°F, 70 hr, in Reference Fuel C	-1.0 %
73°F, 168 hr, in Reference Fuel A (Isooctane)	-6.0 %
73°F, 168 hr, in Reference Fuel C	-8.0 %
73°F, 336 hr, in Reference Fuel A (Isooctane)	-3.0 %
73°F, 336 hr, in Reference Fuel C	-4.0 %
73°F, 504 hr, in Reference Fuel A (Isooctane)	-2.0 %
73°F, 504 hr, in Reference Fuel C	-5.0 %
212°F, 70 hr, in ASTM #1 Oil	10 %
212°F, 70 hr, in ASTM #3 Oil	3.0 %
212°F, 168 hr, in ASTM #1 Oil	8.0 %
212°F, 168 hr, in ASTM #3 Oil	5.0 %
212°F, 336 hr, in ASTM #1 Oil	6.0 %
212°F, 336 hr, in ASTM #3 Oil	10 %
212°F, 504 hr, in ASTM #1 Oil	19 %
212°F, 504 hr, in ASTM #3 Oil	10 %
<u>Change in Tensile Strain at Break</u>	ISO 175
73°F, 70 hr, in Reference Fuel A (Isooctane)	-4.0 %
73°F, 70 hr, in Reference Fuel C	-1.0 %
73°F, 168 hr, in Reference Fuel A (Isooctane)	-6.0 %
73°F, 168 hr, in Reference Fuel C	-8.0 %
73°F, 336 hr, in Reference Fuel A (Isooctane)	-3.0 %
73°F, 336 hr, in Reference Fuel C	-4.0 %
73°F, 504 hr, in Reference Fuel A (Isooctane)	-2.0 %
73°F, 504 hr, in Reference Fuel C	-5.0 %
212°F, 70 hr, in ASTM #1 Oil	10 %
212°F, 70 hr, in ASTM #3 Oil	3.0 %
212°F, 168 hr, in ASTM #1 Oil	8.0 %
212°F, 168 hr, in ASTM #3 Oil	5.0 %
212°F, 336 hr, in ASTM #1 Oil	6.0 %
212°F, 336 hr, in ASTM #3 Oil	10 %
212°F, 504 hr, in ASTM #1 Oil	19 %
212°F, 504 hr, in ASTM #3 Oil	10 %
<u>Change in Durometer Hardness</u>	ASTM D471
Shore D, 73°F, 70 hr, in Reference Fuel A (Isooctane)	-2.0
Shore D, 73°F, 70 hr, in Reference Fuel C	-11
Shore D, 73°F, 168 hr, in Reference	-2.0

Fuel A (Isooctane)		
Shore D, 73°F, 168 hr, in Reference Fuel C	-11	
Shore D, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0	
Shore D, 73°F, 336 hr, in Reference Fuel C	-11	
Shore D, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-1.0	
Shore D, 73°F, 504 hr, in Reference Fuel C	-11	
Shore D, 212°F, 70 hr, in ASTM #1 Oil	-3.0	
Shore D, 212°F, 70 hr, in ASTM #3 Oil	-3.0	
Shore D, 212°F, 168 hr, in ASTM #1 Oil	-3.0	
Shore D, 212°F, 168 hr, in ASTM #3 Oil	-2.0	
Shore D, 212°F, 336 hr, in ASTM #1 Oil	-5.0	
Shore D, 212°F, 336 hr, in ASTM #3 Oil	-3.0	
Shore D, 212°F, 504 hr, in ASTM #1 Oil	-5.0	
Shore D, 212°F, 504 hr, in ASTM #3 Oil	-3.0	
Change in Shore Hardness		ISO 175
Shore D, 73°F, 70 hr, in Reference Fuel A (Isooctane)	-2.0	
Shore D, 73°F, 70 hr, in Reference Fuel C	-11	
Shore D, 73°F, 168 hr, in Reference Fuel A (Isooctane)	-2.0	
Shore D, 73°F, 168 hr, in Reference Fuel C	-11	
Shore D, 73°F, 336 hr, in Reference Fuel A (Isooctane)	0.0	
Shore D, 73°F, 336 hr, in Reference Fuel C	-11	
Shore D, 73°F, 504 hr, in Reference Fuel A (Isooctane)	-1.0	
Shore D, 73°F, 504 hr, in Reference Fuel C	-11	
Shore D, 212°F, 70 hr, in ASTM #1 Oil	-3.0	
Shore D, 212°F, 70 hr, in ASTM #3 Oil	-3.0	
Shore D, 212°F, 168 hr, in ASTM #1 Oil	-3.0	
Shore D, 212°F, 168 hr, in ASTM #3 Oil	-2.0	
Shore D, 212°F, 336 hr, in ASTM #1 Oil	-5.0	
Shore D, 212°F, 336 hr, in ASTM #3 Oil	-3.0	
Shore D, 212°F, 504 hr, in ASTM #1 Oil	-5.0	
Shore D, 212°F, 504 hr, in ASTM #3 Oil	-3.0	
Change in Volume		ASTM D471
73°F, 70 hr, in Reference Fuel A	0.0 %	
73°F, 70 hr, in Reference Fuel C	22 %	
73°F, 168 hr, in Reference Fuel A	1.0 %	
73°F, 168 hr, in Reference Fuel C	22 %	
73°F, 336 hr, in Reference Fuel A	1.0 %	
73°F, 336 hr, in Reference Fuel C	24 %	
73°F, 504 hr, in Reference Fuel A	1.0 %	
73°F, 504 hr, in Reference Fuel C	24 %	
212°F, 70 hr, in ASTM #1 Oil	0.0 %	
212°F, 70 hr, in ASTM #3 Oil	4.0 %	
212°F, 168 hr, in ASTM #1 Oil	0.0 %	
212°F, 168 hr, in ASTM #3 Oil	4.0 %	
212°F, 336 hr, in ASTM #1 Oil	0.0 %	
212°F, 336 hr, in ASTM #3 Oil	5.0 %	

212°F, 504 hr, in ASTM #1 Oil	0.0 %	
212°F, 504 hr, in ASTM #3 Oil	5.0 %	
Change in Volume		ISO 175
73°F, 70 hr, in Reference Fuel A	0.0 %	
73°F, 70 hr, in Reference Fuel C	22 %	
73°F, 168 hr, in Reference Fuel A	1.0 %	
73°F, 168 hr, in Reference Fuel C	22 %	
73°F, 336 hr, in Reference Fuel A	1.0 %	
73°F, 336 hr, in Reference Fuel C	24 %	
73°F, 504 hr, in Reference Fuel A	1.0 %	
73°F, 504 hr, in Reference Fuel C	24 %	
212°F, 70 hr, in ASTM #1 Oil	0.0 %	
212°F, 70 hr, in ASTM #3 Oil	4.0 %	
212°F, 168 hr, in ASTM #1 Oil	0.0 %	
212°F, 168 hr, in ASTM #3 Oil	4.0 %	
212°F, 336 hr, in ASTM #1 Oil	0.0 %	
212°F, 336 hr, in ASTM #3 Oil	5.0 %	
212°F, 504 hr, in ASTM #1 Oil	0.0 %	
212°F, 504 hr, in ASTM #3 Oil	5.0 %	
Flammability	Nominal Value	Unit
Flame Rating (0.06 in)	HB	UL 94
Additional Information	Nominal Value	Unit
Compressive Load		ASTM D575
10% Deflection	560	psi
15% Deflection	800	psi
2% Deflection	100	psi
20% Deflection	1000	psi
25% Deflection	1300	psi
5% Deflection	300	psi
50% Deflection	3400	psi
Processing Information		
Injection	Nominal Value	Unit
Drying Temperature - Desiccant Dryer	212 to 230	°F
Drying Time - Desiccant Dryer	2.0	hr
Suggested Max Moisture	< 0.030	%
Suggested Shot Size	40 to 80	%
Suggested Max Regrind	20	%
Rear Temperature	379 to 399	°F
Middle Temperature	379 to 399	°F
Front Temperature	390 to 410	°F
Nozzle Temperature	399 to 410	°F
Processing (Melt) Temp	399 to 421	°F
Mold Temperature	59 to 104	°F
Injection Pressure	6000 to 15000	psi
Injection Rate	Slow-Moderate	
Back Pressure	200	psi
Screw Speed	40 to 80	rpm
Clamp Tonnage	3.0 to 5.0	tons/in ²
Cushion	0.125	in
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):		
<ul style="list-style-type: none"> • Boost: 5 to 10 sec • 2nd Stage: 10 to 20 sec • Cool: 20 to 30 sec 		
Notes		
1 Typical properties: these are not to be construed as specifications.		
2 Die C		
3 Post-cured 16 hr at 230°F		
4 Rate A (50°C/h)		

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