

Texin® 245

Thermoplastic Polyurethane Elastomer (Polyester)

Covestro - PUR

Message:

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 Information			
Features	Impact resistance, good		
	Good flexibility		
	Good wear resistance		
	Low temperature resistance		
	Fuel resistance		
	Oil resistance		
	Good toughness		
Uses	Wheels		
	Gear		
Agency Ratings	FDA 21 CFR 177.2600		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.21	g/cm ³	ASTM D792, ISO 1183
Molding Shrinkage			
Flow: 2.54mm	0.80	%	ASTM D955
Transverse flow: 2.54mm	0.80	%	ASTM D955
Vertical flow direction: 2.54mm	0.80	%	ISO 2577
Flow direction: 2.54mm	0.80	%	ISO 2577
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	43		ASTM D2240, ISO 868
Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus			ASTM D790, ISO 178
23°C	68.9	MPa	ASTM D790, ISO 178
70°C	51.7	MPa	ASTM D790, ISO 178
Taber Abrasion Resistance			
1000 Cycles, 1000g, H-18 wheel	70.0	mg	ISO 4649
1000 Cycles, 1000g, H-18 wheel	70.0	mg	ASTM D1044
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			
50% strain	7.60	MPa	ISO 37, ASTM D412

100% strain	9.00	MPa	ASTM D412, ISO 37
300% strain	20.7	MPa	ASTM D412, ISO 37
Tensile Strength (Yield)	54.5	MPa	ASTM D412, ISO 37
Tensile Elongation (Break)	500	%	ASTM D412, ISO 37
Tear Strength			
-- ¹	123	kN/m	ASTM D624
--	120	kN/m	ISO 34-1
Compression Set			
23°C, 22 hr ²	18	%	ASTM D395B, ISO 815, ISO 815
70°C, 22 hr ³	35	%	ASTM D395B, ISO 815
70°C, 22 hr	43	%	ASTM D395B, ISO 815
100°C, 22 hr ⁴	35	%	ASTM D395B, ISO 815
100°C, 22 hr	60	%	ASTM D395B, ISO 815
Bayshore Resilience	45	%	ASTM D2632
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
-30°C, 3.18 mm	180	J/m	ASTM D256
23°C, 3.18 mm	No Break		ASTM D256
Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air			
100°C, 70 hr	5.0	%	ASTM D573, ISO 216
100% strain, 100°C, 70 hr	4.0	%	ASTM D573
300% strain, 100°C, 70 hr	0.0	%	ASTM D573
100°C, 168 hr	9.0	%	ASTM D573, ISO 216
100% strain, 100°C, 168 hr	3.0	%	ASTM D573
300% strain, 100°C, 168 hr	2.0	%	ASTM D573
100°C, 336 hr	8.0	%	ASTM D573, ISO 216
100% strain, 100°C, 336 hr	3.0	%	ASTM D573
300% strain, 100°C, 336 hr	-4.0	%	ASTM D573
100°C, 504 hr	5.0	%	ASTM D573, ISO 216
100% strain, 100°C, 504 hr	2.0	%	ASTM D573
300% strain, 100°C, 504 hr	-1.0	%	ASTM D573
100% strain 100°C, 70 hr	4.0	%	ISO 216
300% strain 100°C, 70 hr	0.0	%	ISO 216
100% strain 100°C, 168 hr	3.0	%	ISO 216
300% strain 100°C, 168 hr	2.0	%	ISO 216
100% strain 100°C, 336 hr	3.0	%	ISO 216
300% strain 100°C, 336 hr	-4.0	%	ISO 216
100% strain 100 c, 504 hr	2.0	%	ISO 216
300% strain 100 c, 504 hr	-1.0	%	ISO 216
Change in Ultimate Elongation in Air			ASTM D573, ISO 216

100°C, 70 hr	0.0	%	ASTM D573, ISO 216
100°C, 168 hr	2.0	%	ASTM D573, ISO 216
100°C, 336 hr	2.0	%	ASTM D573, ISO 216
100°C, 504 hr	5.0	%	ASTM D573, ISO 216
Change in Durometer Hardness in Air			ASTM D573, ISO 216
Support d, 100°C, 70 hr	-3.0		ASTM D573, ISO 216
Support d, 100°C, 168 hr	-4.0		ASTM D573, ISO 216
Support d, 100 c, 336 hr	-4.0		ASTM D573, ISO 216
Support d, 100 c, 504 hr	-5.0		ASTM D573, ISO 216
Change in Tensile Strength			
23°C, 70 hr, Class C Standard Fuel	-21	%	ASTM D471
100% strain, 23°C, 70 hr, Class C standard fuel	-21	%	ASTM D471
300% strain, 23°C, 70 hr, Class C standard fuel	-34	%	ASTM D471
23°C, 70 hr, in reference fuel A	1.0	%	ASTM D471
100% strain, 23°C, 70 hr, in reference fuel A	1.0	%	ASTM D471
300% strain, 23°C, 70 hr, in reference fuel A	3.0	%	ASTM D471
23°C, 168 hr, Class C Standard Fuel	-18	%	ASTM D471
100% strain, 23°C, 168 hr, Class C standard fuel	-16	%	ASTM D471
300% strain, 23°C, 168 hr, Class C standard fuel	-28	%	ASTM D471
23°C, 168 hr, in reference fuel A	6.0	%	ASTM D471
100% strain, 23°C, 168 hr, in reference fuel a	-2.0	%	ASTM D471
300% strain, 23°C, 168 hr, in reference fuel a	-5.0	%	ASTM D471
23°C, 336 hr, Class C Standard Fuel	-19	%	ASTM D471
100% strain, 23°C, 336 hr, Class C standard fuel	-15	%	ASTM D471
300% strain, 23°C, 336 hr, Class C standard fuel	-27	%	ASTM D471
23°C, 336 hr, in reference fuel A	0.0	%	ASTM D471
100% strain, 23°C, 336 hr, in reference fuel A	0.0	%	ASTM D471
300% strain, 23°C, 336 hr, in reference fuel A	0.0	%	ASTM D471
23°C, 504 hr, Class C Standard Fuel	-18	%	ASTM D471
100% strain, 23°C, 504 hr, Class C standard fuel	-14	%	ASTM D471
300% strain, 23°C, 504 hr, Class C standard fuel	-28	%	ASTM D471
23°C, 504 hr, in reference fuel A	7.0	%	ASTM D471

100% strain, 23°C, 504 hr, in reference fuel A	-1.0	%	ASTM D471
300% strain, 23°C, 504 hr, in reference fuel A	-3.0	%	ASTM D471
100°C, 70 hr, in ASTM #1 oil	15	%	ASTM D471, ISO 175
100% strain, 100°C, 70 hr, in ASTM #1 oil	-2.0	%	ASTM D471, ISO 175
300% strain, 100°C, 70 hr, in ASTM #1 oil	2.0	%	ASTM D471, ISO 175
100°C, 70 hr, in ASTM #3 oil	14	%	ASTM D471, ISO 175
100% strain, 100°C, 70 hr, in ASTM #3 oil	2.0	%	ASTM D471, ISO 175
300% strain, 100°C, 70 hr, in ASTM #3 oil	11	%	ASTM D471, ISO 175
100°C, 168 hr, in ASTM #1 oil	1.0	%	ASTM D471, ISO 175
100% strain, 100°C, 168 hr, in ASTM #1 oil	-1.0	%	ASTM D471, ISO 175
300% strain, 100°C, 168 hr, in ASTM #1 oil	-2.0	%	ASTM D471, ISO 175
100°C, 168 hr, in ASTM #3 oil	18	%	ASTM D471, ISO 175
100% strain, 100°C, 168 hr, in ASTM #3 oil	3.0	%	ASTM D471, ISO 175
300% strain, 100°C, 168 hr, in ASTM #3 oil	10	%	ASTM D471, ISO 175
100°C, 336 hr, in ASTM #1 oil	-10	%	ASTM D471, ISO 175
100% strain, 100°C, 336 hr, in ASTM #1 oil	-3.0	%	ASTM D471, ISO 175
300% strain, 100°C, 336 hr, in ASTM #1 oil	-5.0	%	ASTM D471, ISO 175
100°C, 336 hr, in ASTM #3 oil	20	%	ASTM D471, ISO 175
100% strain, 100°C, 336 hr, in ASTM #3 oil	4.0	%	ASTM D471, ISO 175
300% strain, 100°C, 336 hr, in ASTM #3 oil	2.0	%	ASTM D471, ISO 175
100°C, 504 hr, in ASTM #1 oil	-14	%	ASTM D471, ISO 175
100% strain, 100°C, 504 hr, in ASTM #1 oil	0.0	%	ASTM D471, ISO 175
300% strain, 100°C, 504 hr, in ASTM #1 oil	-9.0	%	ASTM D471, ISO 175
100°C, 504 hr, in ASTM #3 oil	1.0	%	ASTM D471, ISO 175
100% strain, 100°C, 504 hr, in ASTM #3 oil	2.0	%	ASTM D471, ISO 175
300% strain, 100°C, 504 hr, in ASTM #3 oil	-2.0	%	ASTM D471, ISO 175
23°C, 70 hr, in Reference Fuel C	-21	%	ISO 175
100% strain, 23 c, 70 hr, in Reference Fuel C	-21	%	ISO 175
300% strain, 23 c, 70 hr, in Reference Fuel C	-34	%	ISO 175
23°C, 70 hr, in reference fuel A (isooctane)	1.0	%	ISO 175

100% strain, 23°C, 70 hr, in reference fuel A (isooctane)	1.0	%	ISO 175
300% strain, 23°C, 70 hr, in reference fuel A (isooctane)	3.0	%	ISO 175
23°C, 168 hr, in Reference Fuel C	-18	%	ISO 175
100% strain, 23 c, 168 hr, in Reference Fuel C	-16	%	ISO 175
300% strain, 23 c, 168 hr, in Reference Fuel C	-28	%	ISO 175
23°C, 168 hr, in reference fuel A (isooctane)	6.0	%	ISO 175
100% strain, 23°C, 168 hr, in reference fuel A (isooctane)	-2.0	%	ISO 175
300% strain, 23°C, 168 hr, in reference fuel A (isooctane)	-5.0	%	ISO 175
23°C, 336 hr, in Reference Fuel C	-19	%	ISO 175
100% strain, 23 c, 336 hr, in Reference Fuel C	-15	%	ISO 175
300% strain, 23 c, 336 hr, in Reference Fuel C	-27	%	ISO 175
23°C, 336 hr, in reference fuel A (isooctane)	0.0	%	ISO 175
100% strain, 23°C, 336 hr, in reference fuel A (isooctane)	0.0	%	ISO 175
300% strain, 23°C, 336 hr, in reference fuel A (isooctane)	0.0	%	ISO 175
23°C, 504 hr, in Reference Fuel C	-18	%	ISO 175
100% strain, 23 c, 504 hr, in Reference Fuel C	-14	%	ISO 175
300% strain, 23 c, 504 hr, in Reference Fuel C	-28	%	ISO 175
23°C, 504 hr, in reference fuel A (isooctane)	7.0	%	ISO 175
100% strain, 23°C, 504 hr, in reference fuel A (isooctane)	-1.0	%	ISO 175
300% strain, 23°C, 504 hr, in reference fuel A (isooctane)	-3.0	%	ISO 175
Change in Ultimate Elongation			
23°C, 70 hr, Class C Standard Fuel	-1.0	%	ASTM D471
23°C, 70 hr, in reference fuel A	-4.0	%	ASTM D471
23°C, 168 hr, Class C Standard Fuel	-8.0	%	ASTM D471
23°C, 168 hr, in reference fuel A	-6.0	%	ASTM D471
23°C, 336 hr, Class C Standard Fuel	-4.0	%	ASTM D471
23°C, 336 hr, in reference fuel A	-3.0	%	ASTM D471
23°C, 504 hr, Class C Standard Fuel	-5.0	%	ASTM D471
23°C, 504 hr, in reference fuel A	-2.0	%	ASTM D471
100°C, 70 hr, in ASTM #1 oil	10	%	ASTM D471, ISO 175
100°C, 70 hr, in ASTM #3 oil	3.0	%	ASTM D471, ISO 175

100°C, 168 hr, in ASTM #1 oil	8.0	%	ASTM D471, ISO 175
100°C, 168 hr, in ASTM #3 oil	5.0	%	ASTM D471, ISO 175
100°C, 336 hr, in ASTM #1 oil	6.0	%	ASTM D471, ISO 175
100°C, 336 hr, in ASTM #3 oil	10	%	ASTM D471, ISO 175
100°C, 504 hr, in ASTM #1 oil	19	%	ASTM D471, ISO 175
100°C, 504 hr, in ASTM #3 oil	10	%	ASTM D471, ISO 175
23°C, 70 hr, in Reference Fuel C	-1.0	%	ISO 175
23°C, 70 hr, in reference fuel A (isooctane)	-4.0	%	ISO 175
23°C, 168 hr, in Reference Fuel C	-8.0	%	ISO 175
23°C, 168 hr, in reference fuel A (isooctane)	-6.0	%	ISO 175
23°C, 336 hr, in Reference Fuel C	-4.0	%	ISO 175
23°C, 336 hr, in reference fuel A (isooctane)	-3.0	%	ISO 175
23°C, 504 hr, in Reference Fuel C	-5.0	%	ISO 175
23°C, 504 hr, in reference fuel A (isooctane)	-2.0	%	ISO 175
Change in Durometer Hardness			
Support D, 23°C, 70 hr, in Reference Fuel C	-11		ASTM D471, ISO 175
Support D, 23°C, 70 hr, in reference fuel A	-2.0		ASTM D471
Support D, 23°C, 168 hr, in Reference Fuel C	-11		ASTM D471, ISO 175
Support D, 23°C, 168 hr, in reference fuel A	-2.0		ASTM D471
Support d, 23 c, 336 hr, in Reference fuel c	-11		ASTM D471, ISO 175
Support D, 23°C, 336 hr, in reference fuel A	0.0		ASTM D471
Support D, 23°C, 504 hr, in Reference Fuel C	-11		ASTM D471, ISO 175
Support D, 23°C, 504 hr, in reference fuel A	-1.0		ASTM D471
Support D, 100°C, 70 hr, in ASTM #1 oil	-3.0		ASTM D471
Support D, 100°C, 70 hr, in ASTM #3 oil	-3.0		ASTM D471
Support D, 100°C, 168 hr, in ASTM #1 oil	-3.0		ASTM D471
Support D, 100°C, 168 hr, in ASTM #3 oil	-2.0		ASTM D471
Support D, 100°C, 336 hr, in ASTM #1 oil	-5.0		ASTM D471
Support D, 100°C, 336 hr, in ASTM #3 oil	-3.0		ASTM D471
Support D, 100°C, 504 hr, in ASTM #1 oil	-5.0		ASTM D471
Support D, 100°C, 504 hr, in ASTM #3 oil	-3.0		ASTM D471
Support D, 23°C, 70 hr, in reference fuel A (isooctane)	-2.0		ISO 175
Support D, 23°C, 168 hr, in reference fuel A (isooctane)	-2.0		ISO 175

Support D, 23°C, 336 hr, in reference fuel A (isooctane)	0.0		ISO 175
Support D, 23°C, 504 hr, in reference fuel A (isooctane)	-1.0		ISO 175
Support D, 100°C, 70 hr, in ASTM #1 oil	-3.0		ISO 175
Support D, 100°C, 70 hr, in ASTM #3 oil	-3.0		ISO 175
Support D, 100°C, 168 hr, in ASTM #1 oil	-3.0		ISO 175
Support D, 100°C, 168 hr, in ASTM #3 oil	-2.0		ISO 175
Support D, 100°C, 336 hr, in ASTM #1 oil	-5.0		ISO 175
Support D, 100°C, 336 hr, in ASTM #3 oil	-3.0		ISO 175
Support D, 100°C, 504 hr, in ASTM #1 oil	-5.0		ISO 175
Support D, 100°C, 504 hr, in ASTM #3 oil	-3.0		ISO 175
Change in Volume			
23°C, 70 hr, Class A standard fuel	0.0	%	ASTM D471
23°C, 70 hr, Class C Standard Fuel	22	%	ASTM D471
23°C, 168 hr, Class A standard fuel	1.0	%	ASTM D471
23°C, 168 hr, Class C Standard Fuel	22	%	ASTM D471
23°C, 336 hr, Class A standard fuel	1.0	%	ASTM D471
23°C, 336 hr, Class C Standard Fuel	24	%	ASTM D471
23°C, 504 hr, Class A standard fuel	1.0	%	ASTM D471
23°C, 504 hr, Class C Standard Fuel	24	%	ASTM D471
100°C, 70 hr, ASTM Standard Oil (No.1)	0.0	%	ASTM D471
100°C, 70 hr, ASTM Standard Oil (No.3)	4.0	%	ASTM D471
100°C, 168 hr, ASTM Standard Oil (No.1)	0.0	%	ASTM D471
100°C, 168 hr, ASTM Standard Oil (No.3)	4.0	%	ASTM D471
100°C, 336 hr, ASTM Standard Oil (No.1)	0.0	%	ASTM D471
100°C, 336 hr, ASTM Standard Oil (No.3)	5.0	%	ASTM D471
100°C, 504 hr, ASTM Standard Oil (No.1)	0.0	%	ASTM D471
100°C, 504 hr, ASTM Standard Oil (No.3)	5.0	%	ASTM D471
23°C, 70 hr, in reference fuel A	0.0	%	ISO 175
23°C, 70 hr, in reference fuel C	22	%	ISO 175
23°C, 168 hr, in reference fuel A	1.0	%	ISO 175
23°C, 168 hr, in reference fuel C	22	%	ISO 175
23°C, 336 hr, in reference fuel A	1.0	%	ISO 175
23°C, 336 hr, in reference fuel C	24	%	ISO 175
23°C, 504 hr, in reference fuel A	1.0	%	ISO 175
23°C, 504 hr, in reference fuel C	24	%	ISO 175
100°C, 70 hr, in ASTM #1 oil	0.0	%	ISO 175
100°C, 70 hr, in ASTM #3 oil	4.0	%	ISO 175
100°C, 168 hr, in ASTM #1 oil	0.0	%	ISO 175
100°C, 168 hr, in ASTM #3 oil	4.0	%	ISO 175
100°C, 336 hr, in ASTM #1 oil	0.0	%	ISO 175
100°C, 336 hr, in ASTM #3 oil	5.0	%	ISO 175

100°C, 504 hr, in ASTM #1 oil	0.0	%	ISO 175
100°C, 504 hr, in ASTM #3 oil	5.0	%	ISO 175
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -68.0	°C	ASTM D746, ISO 974
Glass Transition Temperature	-46.0	°C	DMA
Vicat Softening Temperature	148	°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 (1.50 mm)	50.0	°C	UL 746
Flammability	Nominal Value		Test Method
Flame Rating (1.50 mm)	HB		UL 94
Additional Information	Nominal Value	Unit	Test Method
Compressive Load			ASTM D575
10% Deflection	3.86	MPa	ASTM D575
15% Deflection	5.52	MPa	ASTM D575
2% Deflection	0.689	MPa	ASTM D575
20% Deflection	6.89	MPa	ASTM D575
25% Deflection	8.96	MPa	ASTM D575
5% Deflection	2.07	MPa	ASTM D575
50% Deflection	23.4	MPa	ASTM D575
Injection	Nominal Value	Unit	
Drying Temperature - Desiccant Dryer	100 - 110	°C	
Drying Time - Desiccant Dryer	2.0	hr	
Suggested Max Moisture	< 0.030	%	
Suggested Shot Size	40 - 80	%	
Suggested Max Regrind	20	%	
Rear Temperature	193 - 204	°C	
Middle Temperature	193 - 204	°C	
Front Temperature	199 - 210	°C	
Nozzle Temperature	204 - 210	°C	
Processing (Melt) Temp	204 - 216	°C	
Mold Temperature	15.0 - 40.0	°C	
Injection Pressure	41.4 - 103	MPa	
Injection Rate	Slow-Moderate		
Back Pressure	1.38	MPa	
Screw Speed	40 - 80	rpm	
Clamp Tonnage	4.1 - 6.9	kN/cm ²	
Cushion	3.18	mm	
Screw L/D Ratio	20.0:1.0		
Screw Compression Ratio	2.5:1.0 - 3.0:1.0		
Injection instructions			

Hold Pressure: 60 to 80% of Injection PressureTimers (per 0.125 in cross section):

Boost: 5 to 10 sec

2nd Stage: 10 to 20 sec

Cool: 20 to 30 sec

NOTE

1.	C mould
2.	Post-cured 16 hr at 230°F
3.	Post-cured 16 hr at 230°F
4.	Post-cured 16 hr at 230°F
5.	速率 A (50°C/h)

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