Texin® 393AE

Characterization	Texin 393AE resin is an aromatic polyester-based thermoplastic polyurethane with a Shore hardness of approximately 93A/51D. It is processed primarily by extrusion but can also be used for injection molding.
Properties / Applications	Texin 393AE resin is characterized by a low gel content, very good hydrolysis resistance, good abrasion resistance and very good chemical resistance to oils, solvents and other non-aqueous solutions. Typical applications include cable jackets, hose jackets and extruded profile. As with any product, use of Texin 393AE resin in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.
Storage, Drying and Regrind Usage	Texin thermoplastic polyurethane resins are hygroscopic and will absorb ambient moisture. The resins should remain in their sealed containers and stored in a dry area. Storage temperatures should not exceed 86°F (30°C). Unused resin from opened containers, or reground material that is not to be used immediately, should also be stored in sealed containers under cool and dry conditions. Prior to processing, Texin 393AE resin must be thoroughly dried for a minimum of 4 hours in a desiccant dehumidifying hopper dryer to a moisture content of less than 0.03%. Hopper inlet air temperature should be 200-220°F (93-104°C), the inlet air dew point should be -20°F(-29°C) or lower. Where end-use requirements permit, up to 20% Texin resin regrind may be used with virgin material. Regrind material must be generated from properly molded/extruded parts, sprues, runners, trimmings, and/or films. Degraded or discolored material may not be used for regrind. All regrind material must be free of contamination and thoroughly blended with virgin material prior to drying and processing. Finished parts containing regrind must be tested to ensure that end-use requirements are fully met. The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity and/or load-bearing performance.

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Injection Molding, Extrusion and Blow Molding Conditions

Typical starting conditions for injection molding, extrusion and blow molding are noted below. Actual processing conditions will depend on machine size, mold design, material residence time, shot size, part geometry, etc.

Typical Injection Molding Conditions

Barrel Temperature: Rear	385°–410°F (196°–210°C)
Barrel Temperature: Middle	385°–415°F (196°–213°C)
Barrel Temperature: Front	385°–415°F (1960°–213°C)
Barrel Temperature: Nozzle	390°–420°F (199°–216°C)
Melt Temperature	390°–420°F (199°–216°C)
Mold Temperature	80°–100°F (27°–40°C)
Injection Pressure	10,000 - 15,000 psi
Hold Pressure	60 - 80% of Injection Pressure
Back Pressure	800 psi max.
Screw Speed	40 - 80 rpm
Injection Speed	Slow to Moderate
Cushion	1/8 in max

Extrusion and Blow Molding Profile

Typical Temperature Profile for Extrusion and Blow Molding

Rear (Feed)	380° - 400°F (193° - 204°C)
Middle (Transition)	385° - 405°F (196° - 207°C)
Front (Meter)	385° - 405°F (196° - 207°C)
Die	385° - 405°F (196° - 207°C)
Melt	385° - 405°F (196° - 207°C)

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Typical Properties* for Natural Resin

Property	ASTM Test Method (Other)	Texin 393AE Resin U.S. Units	Texin 393AE Resin S.I. Units
General			
Specific Gravity	D 792 (ISO 1183)	1.22	1.22
Shore Hardness	D 2240 (ISO 868)	93A/51D	93A/51D
Taber Abrasion: H-18, 1,000-g Load, 1,000 Cycles	D 3489 (ISO 4649)	44 mg Loss	44 mg Loss
Bayshore Resilience	D 2632	30%	30%
Mold Shrinkage, 100-mil thickness	D 955 (ISO 2577)		
Flow Direction		0.008 in/in (mm/mm)	0.008 in/in (mm/mm)
Cross-Flow Direction		0.008 in/in (mm/mm)	0.008 in/in (mm/mm)
Mechanical			
Tensile Strength	D 412 (ISO 37)	6,000 lb/in^2	41.3 MPa
Tensile Stress at 100% Elongation	D 412 (ISO 37)	1,650 lb/in^2	11.5 MPa
Tensile Stress at 300% Elongation	D 412 (ISO 37)	3,750 lb/in^2	26.0 MPa
Ultimate Elongation	D 412 (ISO 37)	490%	490%
Flexural Modulus:	D 790 (ISO 178)		
158°F (70°C)		4,600 lb/in^2	31.7 MPa
73°F (23°C)		11,500 lb/in^2	79.3 MPa
Tear Strength, Die C	D 624 (ISO 34)	700 lbf/in	123 kN/m
Compression Set (postcured):[a]	D 395-B (ISO 815)		
22 Hours at 158°F (70°C)		40%	40%
22 Hours at 73°F (23°C)		20%	20%
Thermal			
Glass Transition Temperature (Tg)	(DMA)[b]	-4°F	-20°C
Vicat Softening Temperature, Rate A (0.125-in, 10N, 0.833°C/min)	D 1525 (ISO 306)	208°F	98°C

** These items are provided as general information only. They are approximate values and are not part of the product specifications.*

a Postcured for 16 hours at 230°F (110°C), not postcuring will result in lower values.

b DMA – Dynamic Mechanical Analysis

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Health and Safety Information	Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling this product. Before working with this product, you must read and become familiar with the available information on its risks, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., safety data sheets and product labels. For further information contact your Covestro LLC representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.
Regulatory Compliance Information	Some of the end uses of the products described in this bulletin must comply with applicable regulations, such as the FDA, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact your Covestro representative or Regulatory Affairs Manager in Pittsburgh, PA.
Note	***The purchaser/user agrees that Covestro LLC reserves the right to discontinue this product without prior notice.***

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