Texin® 987AU

Characterization

Texin 987AU resin is an aromatic polyether-based thermoplastic polyurethane; it can be processed by injection molding, extrusion or blow molding.

Properties / Applications

Texin 987AU resin offers good clarity and outstanding abrasion resistance, impact strength, toughness, and flexibility. It is stabilized against degradation due to heat and UV exposure. It also exhibits excellent hydrolytic stability. Texin 987AU natural color resin is listed under NSF standard 61 for use in potable water applications. Typical applications include belting, hose, cable jackets, hose jackets, seals and gaskets, athletic soles, casters, mine screens, industrial components, tubing, film, and extruded profiles. As with any product, use of Texin 987AU resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Storage, Drying and Regrind Usage

Texin thermoplastic resins are hygroscopic and will absorb ambient moisture. The presence of moisture can adversely affect processing characteristics and the quality of parts. Therefore, the resins should remain in their sealed containers and be stored under cool and dry conditions until used. Storage temperature should not exceed 86ºF (30ºC). Unused resin from opened containers, or reground material that is not to be used immediately, should be stored in sealed containers.

Prior to processing, Texin 987AU resin must be thoroughly dried in a desiccant dehumidifying hopper dryer for a minimum of 4 hours. Hopper inlet air temperature should be 180º-200ºF (82º-93ºC). To achieve the recommended moisture content of less than 0.03%, the inlet air dew point should be -20ºF (-29ºC) 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. Finish parts containing regrind must be tested to ensure that end-use requirements are fully met.

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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	365°–395°F (185°–202°C)
Barrel Temperature: Middle	370°–400°F (188°–205°C)
Barrel Temperature: Front	370°–400°F (1880°–205°C)
Barrel Temperature: Nozzle	375°–410°F (191°–210°C)
Melt Temperature	380°–410°F (190°–210°C)
Mold Temperature	60°–110°F (15°–45°C)
Injection Pressure	8,000 - 15,000 psi
Hold Pressure	60 - 80% of Injection Pressure
Back Pressure	800 psi max.
Screw Speed	40 - 80 rpm
Injection Speed	Moderate
Cushion	1/8 in max

Extrusion and Blow Molding Profile

Typical Temperature Profile for Extrusion and Blow Molding

Rear (Feed)	370° - 395°F (188° - 199°C)
Middle (Transition)	375° - 400°F (191° - 204°C)
Front (Meter)	375° - 400°F (191° - 204°C)
Die	375° - 415°F (191° - 213°C)
Melt	385° - 410°F (196° - 210°C)

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Typical Properties* for Natural Resin

Property	ASTM Test Method (Other)	Texin 987AU Resin U.S. Units	Texin 987AU Resin S.I. Units
General			
Specific Gravity	D 792 (ISO 1183)	1.12	1.12
Shore Hardness	D 2240 (ISO 868)	87A/36D	87A/36D
Taber Abrasion: H-18, 1,000-g Load, 1,000 Cycles	D 3489 (ISO 4649)	25 mg Loss	25 mg Loss
Bayshore Resilience	D 2632	32%	32%
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	41.4 MPa
Tensile Stress at 100% Elongation	D 412 (ISO 37)	900 lb/in^2	6.2 MPa
Tensile Stress at 300% Elongation	D 412 (ISO 37)	1,700 lb/in^2	11.7 MPa
Ultimate Elongation	D 412 (ISO 37)	540%	540%
Flexural Modulus:	D 790 (ISO 178)		
73°F (23°C)		5,000 lb/in^2	34.5 MPa
-22°F (-30°C)		13,500 lb/in^2	93.1 MPa
Tear Strength, Die C	D 624 (ISO 34)	500 lbf/in	87.66 kN/m
Compression Set (postcured):[a]	D 395-B (ISO 815)		
22 Hours at 158°F (70°C)		37%	37%
22 Hours at 73°F (23°C)		13%	13%
Thermal			
Glass Transition Temperature (Tg)	(DMA)[b]	-40°F	-40°C
Vicat Softening Temperature, Rate A (0.125-in, 10N, 0.833°C/min)	D 1525 (ISO 306)	196°F	91°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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