Texin® 288A

Characterization	Texin 288A is an aromatic polyester-based thermoplastic polyurethane with a hardness of approximately 88A. It can be processed by injection molding. Extrusion processes are also possible for some applications.
Properties / Applications	Texin 288A resin is characterized by excellent low-temperature properties and excellent fuel and oil resistance. It also offers outstanding abrasion resistance, impact strength, toughness and flexibility. Typical applications include casters, couplings, sleeves, gears, bushings, industrial components and identification tags. As with any product, use of Texin 288A 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 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 288A 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 180-200ºF (85-93ºC), 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. 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 Conditions

Typical starting conditions for injection molding 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	380°–410°F (190°–210°C)
Barrel Temperature: Middle	385°–410°F (196°–210°C)
Barrel Temperature: Front	390°–415°F (200°–213°C)
Barrel Temperature: Nozzle	390°–415°F (200°–213°C)
Melt Temperature	395°–410°F (202°–210°C)
Mold Temperature	60°–100°F (15°–40°C)
Injection Pressure	6,000 - 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

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.

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Typical Properties* for Natural Resin

Property	ASTM Test Method (Other)	Texin 288A Resin U.S. Units	Texin 288A Resin S.I. Units
General			
Specific Gravity	D 792 (ISO 1183)	1.20	1.20
Shore Hardness	D 2240 (ISO 868)	88A/38D	88A/38D
Taber Abrasion: H-18, 1,000-g Load, 1,000 Cycles	D 3489 (ISO 4649)	40 mg Loss	40 mg Loss
Bayshore Resilience	D 2632	41%	41%
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)	6,800 lb/in^2	46.9 MPa
Tensile Stress at 100% Elongation	D 412 (ISO 37)	1,000 lb/in^2	6.9 MPa
Tensile Stress at 300% Elongation	D 412 (ISO 37)	2,900 lb/in^2	20.0 MPa
Ultimate Elongation	D 412 (ISO 37)	500%	500%
Flexural Modulus: 73°F (23°C)	D 790 (ISO 178)	6,7000 lb/in^2	46.2 MPa
Tear Strength, Die C	D 624 (ISO 34)	600 lbf/in	105.1 kN/m
Compression Set as molded (postcured):**	D 395-B (ISO 815)		
22 Hours at 158°F (70°C)		52% (21%)	52% (21%)
22 Hours at 73°F (23°C)		15% (12%)	15% (12%)
Thermal			
Glass Transition Temperature (Tg)	(DMA)[a]	-49°F	-45°C
Vicat Softening Temperature, Rate A (0.125-in, 10N, 0.833°C/min)	D 1525 (ISO 306)	274°F	135°C

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

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

a 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.

Note

The purchaser/user agrees that Covestro LLC reserves the right to discontinue this product without prior notice.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you utilize our products, technical assistance and information to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

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