AZON
POUR AND DEBRIDGE

Product Data Sheet

Universal **No-Tape™ 304-12T**

Structural Thermal Barrier Polymer
U.S. Patent 5,554,713

Product description

Universal No-Tape™ 304-12T is a patented, thixotropic, two component thermal barrier polymer, engineered for exceptional production efficiency and superior thermal performance. Upon mixing, the reactive resin and polymeric isocyanate components form a highly viscous material that resists flow, eliminating the need to tape extrusion ends for material retention during curing. This innovation reduces end waste and streamlines manufacturing processes. Formulated for superior shear strength and thermal performance, this advanced polymer is designed to meet the rigorous demands of today's high-performing fenestration systems.

Table 1: Physical properties of uncured materials

	13-302A A-ISO	Universal No-Tape 304-12T B-Resin	Measurement
Color	dark brown	black	
Specific gravity	1.237 ± 0.006	1.078 ± 0.010	
Density	1.237 ± (10.32)	1.078 ± 0.010 (8.95 ± 0.100)	g/cm³ (lb/gal)
Viscosity	205 ± 30	600 ± 100	centipoise
Mix ratio	79	100	by volume
Mix ratio	91	100	by weight

Table 2: Processing conditions of materials*

	Value	Measurement
Hand gel time (100 gram sample)**	19 ± 2	seconds
Machine gel time (100 gram sample)**	12 ± 2	seconds
Minimum debridging time***	3	minutes
Recommended pour temperature of chemicals and metal	25 ± 5 77 ± 10	degrees Celsius degrees Fahrenheit

*All mixing and tests were conducted at 25°C (77°F) unless otherwise noted.

**Gel time may vary slightly due to changes in ambient and chemical temperatures.

***Minimum debridging time will vary based on the shape and size of the extrusion and cavity, as well as curing conditions. Always verify that the material has reached a hardness of Shore D 65 before proceeding with debridging. Refer to Table 3 for optimal hardness values.

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Table 3: Performance characteristics of cured material (two hours at 70°C[158°F])

	SI	IP	Test method
Tensile strength	41 ± 7 N/mm²	6,000 ± 1,000 psi	ASTM D638
Elongation or break	20% minimum	20% minimum	ASTM D638
Modulus of elasticity	1,655+ N/mm²	240,000+ psi	ASTM D638
Notched Izod impact	85.4 ± 25 J/m	1.60 ± 0.5 ft*lbf/in	ASTM D256
Thermal conductivity K-factor	0.210 W/m-K	1.456 Btu-in/(hr-°F-ft²)	NFRC 101 (ASTM C518)
Heat distortion temperature at 0.46 MPa (66 psi)	80° ± 10°C	176° ± 20°F	ASTM D648
Coefficient of linear thermal expansion	1.68 x 10^{-4} cm/cm°C	9.34 x 10^{-5} in/in°F	ASTM D696
Mixture density	1.147 g/cm³	71.6 lb/ft³	ASTM D1622
	Value		
Hardness	77 ± 3	Shore D	ASTM D2240

Note: The test data herein stated are typical values, which may be used as a guideline in evaluating this material for its intended use. We recommend that polymer properties be tested on a regular basis to ensure that both chemicals and machinery are meeting the requirements of the thermal barrier system.

The cured polymer resists fracturing during normal fabrication and exhibits all end use properties as tested per American Architectural Manufactuers Association (AAMA).

General

Universal No-Tape is a patented, thixotropic polyurethane thermal barrier that stands apart from conventional solid urethane chemistries. Unlike standard formulations that continue to flow throughout their entire gel time (typically 14–35 seconds), No-Tape transitions into a thick, pudding-like consistency within just 3 seconds and gels completely in under 15 seconds. This rapid viscosity build-up prevents unwanted flow and material runout at the ends of aluminum extrusions, eliminating the need for manually applied end tapes. By removing this labor intensive step, No-Tape streamlines the manufacturing process, reduces waste, and enhances production efficiency, all while maintaining the structural performance expected from a high performaning thermal barrier.

Adhesion and dry shrinkage

The adhesive performance of thermal barrier chemicals largely depends on the condition of the substrate. For optimal bonding, Azon recommends utilizing a thermal barrier cavity with a mechanical lock. The finish condition of the cavity prior to filling is also critical for achieving proper adhesion and minimizing dry shrinkage. The aluminum surface must be clean and free of dirt, grease, and contaminants. Additionally, the cavity should be properly pretreated with paint, ensuring no excessive overspray or inadequate rinsing. Azon recommends performing AAMA thermal cycle testing on the specific combination of thermal barrier chemical and surface finish to confirm long-term adhesion performance.

Curing and Debridging Guidelines

Extrusions should not be debridged until the thermal barrier reaches a minimum hardness of Shore D 65. **IMPORTANT**: Debridging before reaching Shore D 65 may lead to distortion or pose a safety risk. A partially cured barrier can be compressed by the drive wheels of the Bridgemill saw, potentially causing kickback directly in line with the milling blade.

As with all thermal barrier polymers, the reactivity and cure rate of No-Tape may vary depending on the temperature of both the chemicals and the aluminum. To ensure proper curing, it is recommended that both the chemical components and the extrusion be maintained at 25 ± 5°C (77°F). The metal temperature should not fall below 18.3°C (65°F). Processing outside these temperature ranges can result in curing inconsistencies, fabrication issues, or dimensional distortion.

Azon Universal No-Tape 304-12T is intended solely for approved thermal barrier applications. Use in any other application requires prior written authorization from Azon.

Storage and Handling

Azon thermal barrier components are very stable materials when properly handled. To avoid problems, it is important to understand that these materials are sensitive to moisture. Containers of the components must be stored in a dry area where the temperature range does not fall below 10°C (50°F) and does not exceed 37°C (100°F) for prolonged periods.

The expected shelf life of Azon chemical products is 12 months. When properly stored in unopened, sealed containers, the shelf life may be considerably prolonged. It is important to observe good inventory control by using the first in, first used practice.

When removing the chemical supply from the machinery, always reseal the partially full container with dry nitrogen or dry air (dew point below -40°C [40°F] to protect the contents from moisture contamination.

Disposal

Care should be taken to protect our environment. The user of this product has the responsibility to dispose of unused material or residue in compliance with local governmental guidelines for the disposal of nonhazardous and hazardous waste.

Health and safety

Safety data sheets and product labels must be reviewed prior to use or handling the material. Ordinary hygienic principles, such as washing the compound from the hands before eating or smoking, should be observed. Hands should be washed with a waterless cleaner followed by soap and water. Avoid breathing of vapors, prolonged contact with the skin, contact with open breaks in the skin and ingestion. Use with adequate ventilation.

Ordering

To place orders or for pricing information, please contact Azon customer support at 1.800.788.5942.

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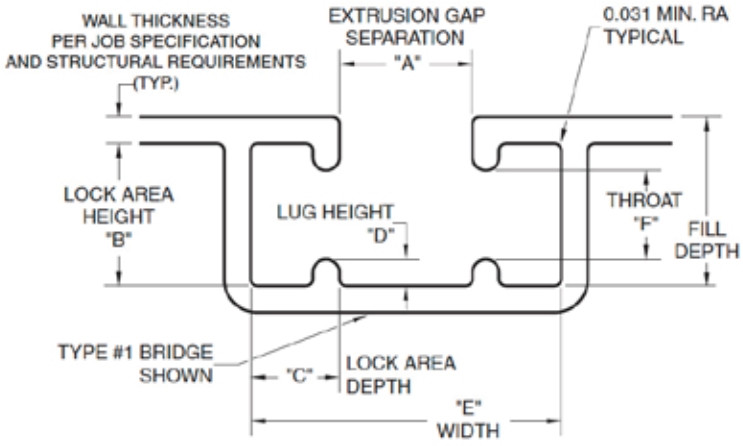
Technical service

For assistance with thermal barrier design, please contact the AZO/Tec® department at Azon. This team provides expert analysis and guidance on cavity sizing, placement, and mechanical lock recommendations. AZO/Tec offers support to optimize both existing and new thermal barrier systems, ensuring superior thermal and structural performance in field applications.

Cavity design

Cavity design in aluminum extrusions should follow the guidelines outlined in AAMA TIR-A8-16, as illustrated in Figure 1 on the next page. The AZO/Tec® design and simulation team supports customers in developing structurally sound and energy-efficient fenestration systems by offering thermal simulations and comprehensive design consulting services.

Figure 1: Cavity recommendations



Cavity data

Standard Designation	"A"	"B"	"C"	"D"	"E"	"F"	Area mm² (in²)	Volume ml/m (in²/ft)
AA	5.18 (0.204)	6.86 (0.270)	2.79 (0.110)	1.02 (0.040)	10.77 (0.424)	4.83 (0.190)	70.96 (0.110)	71 (1.320)
BB	6.35 (0.250)	7.14 (0.281)	4.06 (0.160)	1.14 (0.045)	14.48 (0.570)	4.85 (0.191)	100.65 (0.156)	101 (1.872)
CC	6.35 (0.250)	7.92 (0.312)	4.78 (0.188)	1.27 (0.050)	15.90 (0.626)	5.38 (0.212)	123.23 (0.191)	123 (2.292)
DD	7.92 (0.312)	8.89 (0.350)	5.49 (0.216)	1.57 (0.062)	18.90 (0.744)	5.74 (0.226)	165.81 (0.257)	166 (3.084)
EE	9.53 (0.375)	9.53 (0.375)	5.74 (0.226)	1.57 (0.062)	21.01 (0.827)	6.38 (0.251)	199.35 (0.309)	199 (3.708)