AZON
POUR AND DEBRIDGE

Product Data Sheet

SU 315-14T

Structural Thermal Barrier Polymer

Product description

SU 315-14T is a two component thermal barrier polymer, engineered to meet the rigorous demands of today's high-performing fenestration systems. When mixed, the reactive resin and polymeric isocyanate form a robust, insulating polymer designed for superior thermal performance and shear strength. The cured material resists fracturing during standard fabrication processes and meets all end-use performance criteria as tested in accordance with American Architectural Manufacturers Association (AAMA) and other industry specficiations.

Table 1: Physical properties of uncured materials

	13-302A A-ISO	SU 315-14T B-Resin	Measurement
Color	dark brown	black	
Specific gravity	1.237 ± 0.006	1.073 ± 0.003	
Viscosity	205 ± 30	650 ± 100	centipoise
Mix ratio	72	100	by volume
Mix ratio	83	100	by weight

Table 2: Processing conditions of materials*

	Value	Measurement
Hand gel time (100 gram sample)**	22 ± 3	seconds
Machine gel time (100 gram sample)**	14 ± 3	seconds
Minimum debridging time***	5	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.

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

	SI	IP	Test method
Tensile strength	38 ± 7 N/mm^2	5,500 ± 1,000 psi	ASTM D638
Elongation or break	50 ± 15%	50 ± 15%	ASTM D638
Modulus of elasticity	1,655 N/mm^2	240,000+ psi	ASTM D638
Notched Izod impact	85.4 ± 27 J/m	1.60 ± 0.5 ft*lbf/in	ASTM D256
Thermal conductivity K-factor	0.21 W/m-K	1.456 Btu-in/ (hr-°F-ft^2)	ASTM C518/ NFRC 101
Heat distortion temperature at 0.46 MPa (66 psi)	65° ± 10°C	149° ± 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/cm^3	71.6 lb/ft^3	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.

Adhesion and dry shrinkage

The adhesive performance of thermal barrier chemicals largely depends on the condition of the substrate. Contaminants such as dirt and grease, poor rinsing, overspray, or insufficient pretreatment can significantly impair adhesion and must be eliminated prior to processing. For optimal bonding, Azon recommends utilizing a thermal barrier cavity with a mechanical lock to secure the bond. AAMA thermal cycle testing on the specific combination of finish and barrier is strongly recommended to verify long-term adhesion.

Processing

Cure rates can vary slightly based on the temperature of both the aluminum and the chemicals. To ensure proper curing and consistent performance, maintain materials and extrusions at 25±5°C (77±10°F). For optimal performance, the aluminum temperature must not fall below 18.3°C (65°F) during processing. Processing outside these temperature ranges can result in curing inconsistencies, fabrication issues, or dimensional distortion.

IMPORTANT: Premature debridging can lead to distortion and potential safety hazards. Inadequately cured material may compress under the pressure of the Bridgemill saw's drive wheels, creating a hazardous kickback condition. Do not begin debridging until the polymer reaches a durometer hardness of Shore D 65.

Note: Azon Structural Urethane is approved solely for thermal barrier applications. Use in any other application requires written authorization from Azon.

Fabrication and Assembly

Azon thermal barrier polyurethane is compatible with standard fabrication techniques. Drilling and milling are preferred over punching to minimize stress. Avoid notching into the center of the poured cavity to reduce potential leak paths. Take care when fabricating or handling the filled extrusions at temperatures below 13°C (55°F) to avoid reducing impact resistance.

Azon thermal barrier materials cure rapidly and have excellent heat distortion resistance. However, full mechanical properties are achieved after seven days at ambient temperatures (25°C / 77°F). Handle filled and debridged extrusions with care during this curing period.

Storage and Handling

Azon thermal barrier components are very stable materials when properly handled. It is important to understand that these materials are moisture sensitive. 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 longer. It is important to observe good inventory control by using the first in, first used practice. When detatching chemical supply lines from production machinery, always blanket chemicals with dry nitrogen or -40°C (40°F) dew point air to protect the contents of partial containers from moisture contamination.

Disposal

Dispose of unused product or residue in accordance with local regulations governing hazardous and nonhazardous waste. It is the user's responsibility to follow all applicable disposal guidelines.

Health and safety

Review the Safety Data Sheet (SDS) and product labels before use. Practice standard hygiene—clean hands thoroughly after using. Use a waterless hand cleaner followed by soap and water. Avoid inhaling vapors, skin contact, exposure to open wounds, or ingestion. Always use the product 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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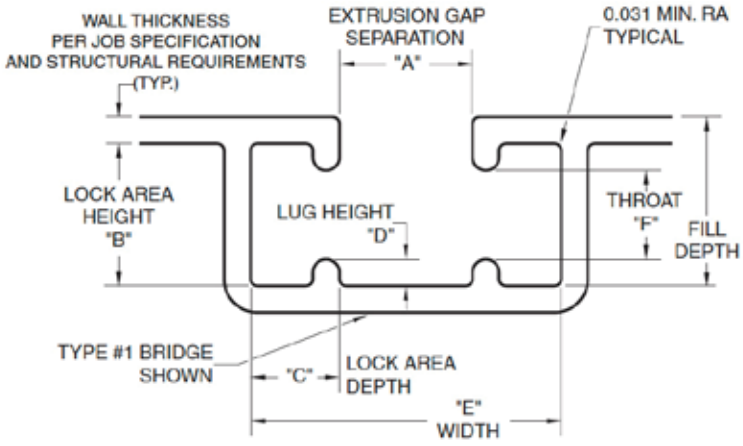
Technical service

For technical assistance, including thermal barrier cavity review and mechanical lock recommendations, contact the AZO/Tec® department. Azon provides analysis and recommendations to enhance both new and existing systems for superior thermal and structural performance.

Cavity design

Cavity design should conform to AAMA TIR-A8-16 guidelines (see Figure 1 below). The AZO/Tec® team offers thermal simulation, design guidance, and support to help customers develop energy-efficient and structurally sound fenestration systems.

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)