

MOLECULAR Chemical Systems™



Liquid Polyurethane Elastomer System

Technical Data for ELB-77D / ELA-S1000-14

ELB-77D is a two-component, non-cellular, instant-set polymer. This MDI-based urethane system incorporates an organic liquid modifier to control the exotherm and allow for rapid cycle of thick solid parts without thermal degradation. This system meets the flammability requirements for UL-94 V-0 at thicknesses of 3mm or greater.

Iso Component: ELA-S1000-14

PHYSICAL Foam Characteristics	
Core density ASTM D1622-98	1.15 g/mL
Surface Hardness	77 Shore D
Compressive Strength ASTM D695	17,700 psi
Shear Strength ASTM D732	6,300 psi
Flexural Strength ASTM D790-99	7,800 psi
Flexural Modulus ASTM D790-99	200,000 psi
Tensile Strength ASTM D638	5,050 psi
Tensile Modulus ASTM D638	171,000 psi
Elongation ASTM D638	4.5 %
Impact Strength, Izod unnotched	4.0 ft-lb/in
Linear Shrinkage	1.5%
Heat Distortion @ 264 psi ASTM D648	210 °F
Coefficient Linear Expansion [(in/in) x °F]	13 x 10 ⁻⁵
Foam REACTIVITY Hand Mix*	
Component temp	75 °F
Cream Time, seconds	n/a
Gel Time, seconds	40
Demold Time, seconds	240

Typical CHEMICAL Profile		
Property	Resin Blend ELB-77D	Isocyanate ELA-S1000-14
Viscosity @ 77 °F	770 cP	1000 cP
Density (lb/gal)	8.5	10.3
Storage Temperature	60-100 °F	60-100 °F
Shelf Life*	6 mo.	6 mo.
Mix Ratio	26 pbw	74 pbw

*Reaction times & density are influenced by mix efficiency, component temperatures and ambient conditions.

**Shelf life dependent on storage conditions. Both components should be stored in tightly capped containers with nitrogen blanketed head-space. Components should be stored in a temperature controlled environment of approximately 75 °F. Avoid extreme temperatures and significant changes in temperature. Always have an SDS available.

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Revised July 2017

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Processing & Safety Information

Processing

- To ensure maximum quality, the polyol blend component of this system must be thoroughly mixed at the recommended component temperature before use.
- To maintain the desired density, reactivity and surface quality of foam produced with this system, the chemicals must be kept dry in tightly sealed containers and stored under the recommended conditions. Isocyanate may crystallize if the recommended storage conditions are not maintained.
- Molds used in the processing of this system should be constructed from a good heat conducting material and able to withstand a *minimum* of 10 psig molding pressure.

Safety

All sales of products manufactured by Carpenter Co. and described herein are made solely on the condition that our customers comply with applicable health and safety laws, regulations and orders relating to the handling of our products in the workplace.

Before using, please read all product labels and Safety Data Sheet for each product. A general Safety, Health and Toxicity bulletin is also available from Carpenter. All this literature, if presently not on your site, can be obtained from the Customer Service Representative.

Polyurethane products manufactured or produced from this liquid system may represent a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend upon a broad range of factors which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. ***Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the products response to heat and flame under controlled laboratory conditions.*** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures. In case of an emergency please call Chemtrec at 800-424-9300.

Ordering

Molecular Chemical Systems™ are available in bulk (tankwagon), totebin, or 55-gallon drums. To place an order or obtain additional information, please call **Customer Service at 800-444-5132**