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## UL 500F

### LOW-DENSITY OPEN-CELL POLYURETHANE INSULATION

#### Half Pound Foam

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#### PRODUCT DESCRIPTION:

**UL 500F** is a low-density open-cell spray-applied polyurethane (SPF) foam system designed for residential insulation applications. **UL 500F** is compatible with most common construction materials, but should only be processed with UL ISO-F Isocyanate. The benefits of **UL 500F** include:

- Superior insulation performance
  - Ease of application
  - Non-fibrous
  - Sound control
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#### TYPICAL PROPERTIES\*\*:

##### PROPERTY VALUE TEST METHOD

##### **Liquid Resin – As Supplied**

Specific Gravity @ 70°F 1.105 ASTM D 1638

Viscosity @ 70°F (cps) 750cps Brookfield

##### **As Cured**

Iso:Resin Mix Ratio (vol:vol) 1:1

Density, core (pcf @ 4" lift) 05 (nominal) ASTM D 1622

Open Cell Content (%) >90 ASTM D 6226

Initial k-factor (Btu in/ft<sup>2</sup> hr °F) 0.238 (R=4.2/in)\*\*\* ASTM C 518

Aged k-factor (Btu in/ft<sup>2</sup> hr °F) 0.256 (R=3.9/in)\*\*\* ASTM C 518

in conformance with ICC AC377

Water Absorption @ 96 hrs (vol%) >40 ASTM D 2842

*\* This numerical flame spread rating does not reflect hazards presented by this or any other material under actual fire conditions. Polyurethane foam systems should not be left exposed in interior applications and must be protected by a minimum of a 15-minute thermal barrier.*

*\*\* These physical property values are typical for this material as applied at our development facility under controlled conditions. SPF performance and actual physical properties will vary with differences in application (i.e. ambient conditions, process equipment and settings, material throughput, etc). As a result, these published properties should be used as guidelines solely for the purpose of evaluation. Physical property specifications should be determined from actual production material.*

*The above data was collected from samples prepared using the following equipment configuration:*

- GRACO® Reactor® E-30 proportioner set at 1:1 volume ratio with 50 ft of heated delivery hose
- GRACO® Fusion® Air Purge spray-gun configured with an AR4242 mix chamber
- Process temperature settings: Isocyanate 130-135°F; Resin 130-135°F; Hose 130°F
- Process pressure: 1000 psig minimum while spraying.
- Resin in the drum was continuously mixed before and during application.

*\*\*\*The data shows the R-value of this insulation. "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation will depend upon the climate, the type and size of your*



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house, and the fuel use patterns and family size. If you buy too much insulation it will cost you more than what you will save on fuel. To achieve proper R-values, it is essential that this insulation be installed properly.

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#### **APPROVALS AND CREDENTIALS:**

##### **ASTM E-84\* Listed at Intertek ETL Semko**

Class I

SPF Thickness - 4.0 inches

Flame Spread Index - ≤25

Smoke Development Index - ≤450

\* This numerical flame spread rating does not reflect hazards presented by this or any other material under actual fire conditions. Polyurethane foam systems should not be left exposed and must be protected by a minimum 15-minute thermal barrier or other code-compliant material as allowed by applicable building code(s) and Code Official. Building Codes provide guidelines representing minimum requirements. Further information is available at [www.iccsafe.org](http://www.iccsafe.org). Consult all Authorities having jurisdiction over an area for additional or specific requirements prior to beginning a project.

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#### **GENERAL INFORMATION:**

UL 500F is an open-cell spray polyurethane foam (SPF) system intended for installation by qualified contractors trained in the processing and application of SPF systems, as well as the plural-component polyurethane dispensing equipment required to do so. Contractors and applicators must comply with all applicable and appropriate storage, handling, processing and safety guidelines. Ultimate Linings technical service personnel should be consulted in all cases where application conditions are questionable.

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#### **CAUTIONS AND RECOMMENDATIONS:**

UL 500F resin requires continuous agitation. Mechanical mixing for a minimum 30 minutes is recommended prior to and must be continued during installation. Proper mixing will produce a vortex in the resin and may be accomplished with any number of equipment configurations and mixer-blade types. Absence of a vortex while mixing may compromise the quality of the foam due to improper mixing.

UL 500F is designed for an application rate of ½ inch minimum to 4 inches maximum. Once installed material has cooled it is possible to add additional applications in order to increase the overall installed thickness of SPF. This application procedure is in compliance with the Spray Polyurethane Foam Alliance (SPFA).

UL 500F is NOT designed for use as an EXTERIOR roofing system. Ultimate Linings offers a separate line of products for exterior roofing applications. For more information please contact your sales representative.

Cold-storage structures such as coolers and freezers demand special design considerations with regard to thermal insulation and moisture-vapor drive. UL 500F should NOT be installed in these types of constructions unless the structure was designed by a design professional for specific use as cold storage.

UL 500F is designed for installation in most standard construction configurations using common materials such as wood and wood products, metal and concrete. UL 500F has performed successfully when sprayed onto wood substrates down to 40°F. For other substrates, please consult your Ultimate Linings sales or technical service representative for specific recommendations.



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Foam plastic materials installed in walls or ceilings may present a fire hazard unless protected by an approved, fire-resistant thermal barrier with a finish rating of not less than 15 minutes as required by building codes. Rim joists/header areas, in accordance with the IRC and IBC, may not require additional protection. Foam plastic must also be protected against ignition by code-approved materials in attics and crawl spaces. See relevant Building Codes and [www.iccsafe.org](http://www.iccsafe.org) for more information.

The UL 500F foam systems are NOT recommended for medical uses; such as, splints or casts for broken bones nor other medical or pharmaceutical uses.

In addition to reading and understanding the MSDS, all contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems. Personnel should review the following document published by Spray Polyurethane Foam Alliance (SPFA):

- AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings and the following document available from the Center for the Polyurethanes Industries (CPI): Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration's Respiratory Protection Program Standard 29 C.F.R. §1910.134

As with all SPF systems improper application techniques should be avoided. Examples of improper application techniques include, but are not limited to excessive thickness of SPF, off-ratio material and spraying into or under rising SPF. Potential results of improperly installed SPF include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed SPF must be removed and replaced with properly installed materials.

LARGE MASSES of SPF should be removed to an outside safe area, cut into smaller pieces and allowed to cool before discarding into any trash receptacle.

SPF insulation is combustible. High-intensity heat sources such as welding or cutting torches must not be used in contact with or in close proximity to UL 500F or any polyurethane foam.

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#### SHELF LIFE AND STORAGE CONDITIONS:

UL 500F Series has a shelf life of approximately three months from the date of manufacture when stored in original, unopened containers at 50-80°F. As with all industrial chemicals this material should be stored in a covered, secure location and never in direct sunlight. Storage temperatures above the recommended range will shorten shelf life. Storage temperatures above the recommended range may also result in elevated headspace pressure within packages.

#### LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY:

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are only intended for sale to industrial and commercial customers. Customer assumes full responsibility for quality control, testing and determination of suitability of products for its intended application or use. We warrant that our products will meet our written liquid component specifications. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability or fitness for a particular purpose. Our total liability and customers' exclusive remedy for all proven claims is replacement of nonconforming product and in no event shall we be liable for any other damages.

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