



# UPC 500

## Open-Cell Spray Insulation

### Technical Data Sheet

**UPC 500** is a two component, water blown (zero ozone-depleting chemicals) light density, open-cell spray polyurethane foam insulation. **UPC 500** is designed to improve the performance of the building envelope for commercial, residential and industrial applications. When properly installed **UPC 500** expands, sealing voids, gaps and crevices. Ideal fit to help fill cavities of any shape, providing an air barrier to reduce air leakage, and a higher R-value than other insulating materials, resulting in increased energy savings and comfort.

**UPC 500** is a 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. Universal Polymers technical service personnel should be consulted in all cases where application conditions are questionable.

#### Recommended Uses

- Walls
- Floors
- Unvented Attics
- Vented Attics
- Ceilings
- Crawl Spaces

#### Typical UPC 500 Physical Properties\*

Properties as Specified	A	B
Specific Gravity @ 70°F	1.24	1.10
Viscosity (Brookfield cps)	250.00	350.00

Properties as Cured	Test Method	Value
Core Density	ASTM D-1622	0.5 pcf
Tensile Strength	ASTM D-1623	4.06 psi
R-value @ 1"	ASTM C-518	4.1
R-value @ 3.5"	ASTM C-518	14.35
Moisture Permeability	ASTM E-96	8.4 perm/inch @ 3 1/2" thickness
Open Cell Content	ASTM D-1949	> 97%
Dimensional Stability	ASTM D-2126	< 0.03%
Sound Transmission Coefficient	ASTM E-90	50 (STC)
Noise Reduction Coefficient	ASTM C-423	0.10
Compressive Strength	Parallel ASTM D-1621	.95 psi
Flammability	ASTM E-84 at 4 inches	Flame Spread 15 Smoke Dev. < 165

### Large Scale Fire Testing

**UPC 500** has been tested and approved in accordance to AC 377 (NFPA 286) Appendix X with 4 wet mils - 3 dry mils of DC 315 ignition barrier from International Fireproof Technology, Inc.

**UPC 500** has been tested and approved in accordance to NFPA 286 with 20 wet mils – 13 dry mils of DC 315 thermal barrier from International Fireproof Technology, Inc.

### Processing Parameters

Store materials between 65° to 85°F in a dry and well ventilated area. Material in containers should be maintained at 75°F to 90°F while in use. Conditioned trailers or tanks may be necessary. Material temperature should be confirmed with a thermometer or an infrared gun.

### Processing Equipment

2:1 transfer pumps are recommended for material transfer from container to the proportioner. The plural component proportioner must be capable of supplying each component within ± 2% of the desired 1:1 mixing ratio by volume.

Hose heaters should be set to deliver 115°F to 140°F materials to the spray gun. These settings will ensure thorough mixing in the spray gun mix chamber in typical applications. Optimum hose pressure and temperature will vary with equipment type and condition, ambient and substrate conditions, and the specific application. Some equipment may require you to warm containers to achieve optimum material temperature. It is the responsibility of the applicator to properly interpret equipment technical literature, particularly information that relates to acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and the capacity of the proportioner's pre-heater is critical.

To ensure optimum performance, a minimum pass of 1" is recommended with no limit pass thickness. All substrates must be dry at time of application.

### Equipment Settings:

Chemical Drum Temp. Above 75-90°F	
● Pre-Heat: ISO (A)	115°F to 140°F
● Pre-Heat: Resin (B)	115°F to 140°F
● Hose Heat:	115°F to 140°F
● Spray Pressure	1000 to 1400 psi (dynamic)

### SHELF LIFE AND STORAGE CONDITIONS

**UPC 500** has a shelf life of approximately six 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.

In addition to reading and understanding the SDS, 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 is 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 **UPC 500** or any polyurethane foam.

### CAUTIONS AND RECOMMENDATIONS

**UPC 500** is designed for an application rate of one inch minimum to 6 inches' maximum per pass. Once installed material has cooled it is possible to add additional applications to increase the overall installed thickness of SPF. This application procedure is in compliance with the Spray Polyurethane Foam Alliance (SPFA). **UPC 500** is **NOT** designed for use as an **EXTERIOR** roofing system.

**UPC 500** is designed for installation in most standard construction configurations using common materials such as wood and wood products, metal and concrete.

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 for more information.

### **Handling Information**

Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs warning that all "hot work" such as welding, soldering, and cutting with torches should not take place until a thermal barrier or approved equivalent is installed over any exposed polyurethane foam.

### **Vapor Retarder**

**UPC 500** is intended for indoor applications, and is not a vapor retarder. It is vapor permeable and will allow for some diffusion of moisture through the insulation. The following considerations are needed:

(1) A vapor retarder needs to be considered in the design of the building envelope in cold climates, such as zones 4 and higher in the U.S., as defined in 2004 Supplement to the IRC, Table N 1101.2; (2) A vapor retarder also needs to be considered where high interior humidity conditions exist. Refer to local codes and manufacturer's written specifications to ensure compliance.

### **Health and Safety Information**

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling **UPC 500** foam-forming system. 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., material safety.

### **DISCLAIMER**

Please read all information in the general guidelines, technical data sheets, application guide and material safety data sheets (MSDS) before applying material. Published technical data and instructions are subject to change without notice. Contact your local Universal Polymers representative or visit our website for current technical data and instructions.

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the user's responsibility to satisfy himself, by his own information and tests, to determine suitability of the product for his own intended use, application and job situation and user assumes all risk and liability resulting from his own use of the product. We do not suggest or guarantee that any hazards listed herein are the only ones that may exist. Neither seller nor manufacturer shall be liable to the buyer or any third party for any injury, loss or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements, whether verbal or in writing, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and Universal Polymers makes no claim that these tests or any other tests, accurately represent all environments.

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