



UNIVERSAL POLYMERS CORPORATION

UPC 500®

TECHNICAL DATA SHEET

Version No. 04-2018

ICC ESR-3803

Open Cell Polyurethane Foam Insulation for Commercial and Residential Use

UPC 500 is a two component, water blown (zero ozone depleting chemical) light density, open-cell spray polyurethane foam insulation that is designed to improve the performance of the building envelope for commercial, residential and industrial applications. When installed, expands, seals 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.

Recommended Uses:

WALLS

UNVENTED ATTICS

CEILINGS

ATTICS

VENTED ATTICS

CRAWL SPACES

Typical UPC 500 Properties:

Properties as Specified	A SIDE	B SIDE
Specific Gravity @ 77°F	1.24 ± 0.1	1.13 ± 0.1
Viscosity (Brookfield cps) @ 77°F	200 ± 30	360 ± 100
Properties as Cured	Test Method	Value
Core Density	ASTM D-1622	0.5 pcf ± 0.05
Tensile Strength	ASTM D-1623	3.35 psi
R-value @ 1"	ASTM C-518	3.9
R-value @ 3.5"	ASTM C-518	13.6
Water Vapor Permeance	ASTM E-96	8.4 perms
Air Permeance @ 3.5"	ASTM E-2178 @ 50 Pa	0.00243
Air Permeance @ 3.5"	ASTM E-2178 @ 75 Pa	0.00431
Air Permeance @ 3.5"	ASTM E-2178 @ 100 Pa	0.00610
Dimensional Stability	ASTM D-2126	< 3.8 %
Flammability (Class 1)	ASTM E-84 at 4"	15 Flame Spread 200 Smoke Development

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:

SMaterial in drums must be conditioned by heating and recirculating them to a minimum of 95°F prior to commencing use especially when ambient temperatures are below 85°F and humidity is above 50%. Otherwise some adhesion issues and wall gaps are possible. We also recommend 130-135°F heater and line settings in all conditions. 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 \pm 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 proportion'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 apply.

Equipment Settings:

Chemical Drum Temp.	90°F to 95°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)

Mixing:

UPC 500 "Part B" side material must be thoroughly mixed 20 to 30 minutes prior to application.

Universal Polymers recommends the use of a Graco® Air-Driven Expanding Blade Bung- Mounted Agitator (Part Number: 24C729).

To properly drive the mixer, 22 scfm of air is required. Using less air volume may require extended mixing times.

Shelf Life and Storage:

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.

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 over emphasized. Information is available in several forms, e.g. Safety Data Sheet (SDS).

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.

Health and Safety Information, (Cont.)

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 near 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 complies 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 job-site 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.

DISCLAIMER: Please read all information in the general guidelines, technical data sheets, application guide and safety data sheets (SDS) before applying material. UPC products are for "Professional Use only" and preferably applied by professionals who have prior experience with the UPC products or have undergone training in application of UPC products. 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