



# LPA 2500

## Spray Polyurethane Foam Roofing System

# LPA Roofing Foam System

### PRODUCT DESCRIPTION

**PRODUCT: LPA 2500** Spray Polyurethane Foam Roofing System

**GENERAL DESCRIPTION: LPA 2500** is an HFC blown rigid polyurethane spray foam system with high insulation efficiency and an excellent strength-to-weight ratio. These properties, combined with the outstanding fire testing results, make this product an ideal choice for use in roofing applications.

### CREDENTIALS

#### U.I. 790

Non-Combustible Deck-Class A at any thickness. Incline of 2" (Acrylic Coating) and 3" (Silicone Coating). Granules are optional at 35 pounds per square.

Combustible Deck – Class B with 1.0 inch of foam. Incline of ½" with either Silicone or Acrylic Coating. Granules required at 35 pounds per square.

### PROCESSING PARAMETERS

**LPA 2500** should be applied in 0.50" to 1.5" passes, according to ACP SPFA Foam Application Guidelines. The following data is based upon the following laboratory equipment and set-up.

A Gusmer H-2035 proportioning unit with a GX-7 spray gun configured with a #1 mix module, using a 70-pattern disc and 50 feet of hose.

Primary heats were set at – A side: 120°F (±5°F) and B side: 120°F (±5°F).

Hose heats were set at 130°F with spray pressure of 950 psi minimum. Ratio is 1:1 by volume.

### PHYSICAL PROPERTIES (FINISHED PRODUCT)

PROPERTY	TEST	RESULTS
Density (pcf)	ASTM D-1622	In place 2.5 pcf
Compressive Strength (psi) Type III per ASTM-1029	ASTM D-1621	40 – 45 psi
Tensile Strength (psi) (per ASTM C-1029)	ASTM D-1623	70 – 90 psi
Water Absorption (lb./ft <sup>2</sup> )	ASTM C-1029 ASTM D-2842	0.02 lb/ft <sup>2</sup>
Closed Cell Content	ASTM D-2856	>90%
K-Factor (BTU inch/ft <sup>2</sup> Hr °F)	ASTM C-518	Time of Manufacture 0.150 – 0.180
Dimensional Stability (% Volume Change) Humid Age – 168 hrs/28 days (158°F, 95% RH) Dry Age – 28 days (158°F, Dry) Freeze – 14 days (-20°F)	ASTM D-2126	1.5% 2.0%/5.00% 2.0% -0.5%
Water Vapor Permeability	ASTM C-1029 ASTM E-96	2.0 Perms 2.6 Perm Inch

Note: These physical property results are typical for this material, as applied at our development facility under controlled conditions. The foam and resultant physical properties can vary with changes in the application parameters; i.e., temperatures, thickness, processing equipment, mix head variations, through-put, etc. As a result, these published properties are useful for evaluation guidelines. Physical properties specifications should be determined from actual production processed material.

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## SUBSTRATE PREPARATION

The substrate to be sprayed must be free of grease, oil, loose particles, moisture, and other foreign matter (dirt, loose or damaged protective coatings). A suitable primer should be applied to the prepared substrate to increase adhesion of the insulation. Contact LaPolla Industries, Inc. for product suggestions. Normal applications are to wood, concrete, metal and most existing roofing surfaces.

## SUBSTRATE TEMPERATURE

Wind, ambient temperatures, building materials and sunlight affect surface temperatures. Normal substrate operating temperatures should range from 35°F - 160°F.

## CLIMATIC CONDITIONS

Water (rain, fog, condensation, etc.) will react chemically with the mixed components, adversely affecting the foam formation and resultant properties. Consequently, the substrate must be dry at the time of application. Wind velocities greater than 15 miles per hour may result in loss of exotherm, thus affecting foam density and other characteristics. Windscreens may be used in 15 - 25 miles per hour winds. Extreme caution must be taken to prevent overspray and fumes from contaminating adjacent work areas. Do not apply product within 5 degrees of the dew point, and humidity conditions above 85% must be monitored and inspected frequently. Slit samples should be taken to assess the quality of the polyurethane foam being produced by the foam mechanic.

## EQUIPMENT

The equipment utilized to spray this system must be capable of metering each component within plus/minus ( $\pm$ ) 2% of the given metering ratio. To provide acceptable foam, the spray gun must provide intensive and thorough mixing of the components. The materials in the drums should be 70°F or above at time of application. Most high-pressure (1500 psi or more) equipment works best when the components are warmed to 130°F as measured by inserting a hose thermometer under the hose insulation near the gun. The optimum temperature may vary with the type of

## EQUIPMENT - (CON'T)

equipment used and the particular application. Care must be exercised to be certain that the component A is allowed to only come in contact with isocyanate pots and pumps; and component B in contact with resin pots and pumps only. Dry nitrogen or dry air should blanket both components, as moisture will degrade both components.

## SPRAYING

The spraying operation should be done so that enough material is laid down to wet the surface without running or sagging. The "wetted" surface should be allowed to foam completely before a second layer is applied - usually 30 - 60 seconds. Work should proceed so that a convenient area is built-up to the desired thickness as quickly as possible before moving on to another area. **Caution:** DO NOT apply excessive thicknesses. Use only in a well-ventilated area. Normal pass thickness to be applied is .50" thick minimum to 1.5" thick maximum to obtain physical properties represented on product data sheet. Spraying is to be done by professional and trained foam mechanics only. Applications requiring different spraying techniques than above should be discussed with LaPolla Industries, Inc. before proceeding.

A small "test area" of spray foam should be applied and inspected prior to commencing the project. This simple, low-cost test area can indicate inadequate adhesion, improper surface preparation and/or primer, surface contamination, improper substrate and/or ambient temperature, equipment malfunctions, material contamination, or improper application technique. A simple visual inspection of a sample cut from a test and periodic job samples can reveal potential problems that may be due to one or more of the above conditions.

## PROTECTIVE COATINGS

Sunlight and water adversely affect urethane foams. For this reason it is recommended that a protective coating be applied over the finished foam the same day the foam is applied, to protect against the deteriorating effects of ultraviolet radiation and atmospheric moisture. In addition, this foam system is flammable under many fire conditions and the coating selection

## PROTECTIVE COATINGS – (CON'T)

should also represent a substantial barrier to ignition. Contact LaPolla Industries, Inc. for suggested exterior and interior coating systems that have been UL rated with the LaPolla Industries, Inc. product.

## STORAGE OF RAW MATERIALS

All materials should be stored in their original containers and away from heat and moisture, especially after the containers have been opened. Both components may contain volatile ingredients and should be kept tightly sealed and stored indoors at a temperature between 50°F to 80°F. Open containers carefully, allowing any pressure build-up to be relieved slowly. If volatile, ingredients must be released as a safety precaution; an increase in foam density may be expected.

## ISOCYANATE 'A' COMPONENT

The Isocyanate 'A' Component should be kept away from caustic solutions, tertiary amines, or water to prevent rapid polymerization with accompanying generation of heat and pressure.

## SHELF LIFE

When stored in original unopened containers at 50°F to 80°F, shelf life of the components is approximately three (3) months. Products used past three (3) months from production date can show signs of slower reaction profiles. Storage at temperatures above 80°F will shorten shelf life.

## PHYSICAL PROPERTIES (LIQUID PRODUCT)

PROPERTY	TEST	LPA ISO	LPA 2500
Mix Ratio	By Volume	1.0	1.0
Specific Gravity	ASTM D-1638	1.22 – 1.25	1.18
Viscosity (cps)	Brookfield RVF	150 – 250	500 - 800

## AVAILABLE REACTIVITIES

- S (Summer)            90°F +
- M (Midrange)        70°F - 90°F
- W (Winter)            55°F - 70°F

## GENERAL INFORMATION

The recommended application and handling procedures for the specific product being used should be known and followed by the foam applicator. Review Material Safety Data Sheet, prior to use of this product.

## CAUTION

This exterior roofing formulation is not rated for interior use applications. The use of foamed plastic in interior applications on walls or ceilings may present an unreasonable fire hazard unless the foam is protected by an approved, fire-resistant thermal barrier which has a finish-rating of not less than 15 minutes.

## WARRANTY

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial, commercial, and qualified applicators. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. We warrant that our products will meet our written liquid component specifications. Nothing herein shall constitute any other warranty, express or implied, including any warranty of merchantability of fitness, nor is protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.

## ADDITIONAL INFORMATION

Created: 4.15.07 TF  
 Revised: 10.2.07  
 Revision #: 03

## SAFETY PRECAUTIONS FOR SPRAY FOAM

WORK CREWS should have a complete physical exam before they start work with isocyanates or polyurethane or polyisocyanurate components, and periodic check-ups if they continue working with them.

Employees with the following conditions should not work with these materials:

- Chronic respiratory diseases

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## SAFETY PRECAUTIONS FOR SPRAY FOAM – (CON'T)

- Asthmatic or asthmatic bronchitis medical history
- History or presence of allergic diseases

### PROTECTIVE EQUIPMENT

For Spray Crew:

- Air supplied full-face mask or hood. Air must be oil free.
  - Fabric coveralls;
  - Rubbers or boots;
  - Fabric or impervious gloves
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- If possible, the area within 100 feet of the spray job should be roped off and suitable warning signs set up.
  - If necessary, wind breaks can be put up to confine overspray.
  - Limit spectators to the absolute minimum.

CLEANING SOLVENTS such as Dipropylene Glycol Methyl Ether (DPM) should be used for clean up. Manufacturer's precautions should be observed as expressed on container labels and Material Safety Data Sheets (MSDS).

A SPRINKLER SYSTEM/FIRE DISTINGUISHER water spray, carbon dioxide or dry chemical extinguisher may be used for extinguishing fires involving liquid urethane components. Firefighters should wear self-contained breathing apparatus.

EXPOSED FOAM in an interior area may present a fire hazard when a high intensity heat, from welding, cutting, etc., contacts the foam. This exterior roofing formulation is not rated for interior applications. Thermal barriers are required when urethane foam is sprayed inside any building.

## SAFETY PRECAUTIONS FOR SPRAY FOAM – (CON'T)

### MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets (MSDS) are provided for the Isocyanate – A component and Resin – B component chemicals furnished by LaPolla Industries, Inc. They are also furnished for solvents, oils and coatings that are distributed by LaPolla Industries, Inc. These are required under OSHA's "Right to Know", or hazard communication standard. They should be shown and instruction given to all people working with, or potential of being exposed to, the chemicals in the work area.

### APPLICATIONS AND USES

*Various products and materials are available for many different applications by professional urethane foam contractors. Not all products will work for all applications. If you have not used our components for a particular use or application previously, give us a call to confirm the proper foam compounds for your intended application. Design considerations and uses can also be discussed. Special considerations must be given for cold storage, high humidity and high temperature applications of polyurethane foam.*

### DISPOSAL

*Disposal of containers or unused chemicals must be done in compliance with all applicable federal, state, county or municipal guidelines. Empty containers that have been properly prepared should be recycled by contacting the NABADA – The Association of Container Re-conditioners at 1.800.533.DRUM for the nearest re-conditioner near you.*



For More Information, Please Call

877.6FOAM.IT

[www.lapolla.com](http://www.lapolla.com)

Tempe, AZ

Houston, TX