

PRODUCT USAGE

Enverge® ToughFoam is a spray-applied, two component, closed cell polyurethane foam insulation. Enverge ToughFoam is a high-density 10 lb. spray foam that meets Class A (Class 1) requirements and is designed specifically for use in agricultural applications and uninhabited storage buildings.

SAFETY

PERSONAL PROTECTIVE EQUIPMENT (PPE)

SKIN - Wear gloves, coveralls, apron and boots as necessary to prevent contact of liquid components or partially-cured spray foam with skin. When handling liquid components, gloves should be made of nitrile, neoprene, butyl, or PVC.

EYES - Protect eyes while handling liquid components or spraying with safety goggles or safety goggles combined with a face shield. During spray application, eye protection may be provided by a full-face or hood respirator.

RESPIRATION - Contractors engaged in the application of Enverge spray foam must have a written respiratory protection program for employees handling or applying Enverge spray foam materials. Depending on the situation, respiratory protection may include dust masks, air-purifying respirators (APR), powered air-purifying respirators (PAPR), or supplied-air respirators (SAR).

VENTILATION - Provide ventilation and other engineering controls to exhaust vapors from work areas and to protect building occupants and other workers on site.

HANDLING OF LIQUID COMPONENTS

Applications should use engineered controls and proper PPE before handling liquid components. Use caution in removing bungs from 55-gallon drums. Loosen $\frac{3}{4}$ -inch bung and let gas escape before completely removing. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to "Working with MDI and Polymeric MDI: What You Should Know," Reference No. AX 205, published by Alliance for the Polyurethanes Industry, 1300 Wilson Boulevard, Arlington, VA 22209, www.polyurethane.org.

START UP & APPLICATION PROCEDURES

AMBIENT CONDITIONS

For best results, ambient air should be less than 85% relative humidity and not within 5°F (-15°C) of dew point.

APPROVED SUBSTRATES

Approved for application to gypsum, wood, concrete, metal, and masonry.

SUBSTRATE REQUIREMENTS

Prior to installation, all substrates must be secure, dry, and free of foreign materials, oil, grease, rust, or other contaminants. Check substrates with Moisture Detection Paperstrips (MDP) for metal or a moisture meter for wood to verify dryness. Primers should be used where necessary. Mask off all areas not to receive spray foam with masking tape and plastic sheeting. Recommended substrate temperatures are 50°F to 120°F (10°C to 49°C). Temperatures colder than what are recommended can result in the foam cracking and popping off of the substrate. For quicker removal of excess spray foam use a release agent on stud facing.

DRUM TEMPERATURE REQUIREMENTS

Drum temperature for application should be a minimum of 70°F (32°C), and a maximum of 110°F (43.33 °C).

SPRAY RIG & DRUM PREP

If this installation requires changing the spray rig system from a closed cell product to an open cell product **OR** an open cell to a closed cell, flush B-side (resin) with water to remove the product first. Then flush the water in the system out with the new open or closed cell product. Remember to flush the entire B-resin side including recirc lines, proportioner, and spray hose. For additional information on air purge visit [EnvergeSprayFoam.com/documents](https://www.envergesprayfoam.com/documents).

In order for the drum to be ready for use, the drum must be in a temperature range where your proportioner can reach required spray temperatures.

PLEASE REFERENCE THE EQUIPMENT SETTINGS AND TEMPERATURE SETTINGS EXAMPLE ON THE NEXT PAGE FOR PROPER APPLICATION TEMPERATURES.

START UP & APPLICATION PROCEDURES (CONT.)

EQUIPMENT SETTINGS

Pre-Heaters - Iso (A)	110°F to 150°F (43°C to 66°C)
Pre-Heaters - Poly (B)	110°F to 150°F (43°C to 66°C)
Hose Heat	110°F to 150°F (43°C to 66°C)
Recommended Spray Pressure	1,200 to 1,400 psi (dynamic)
Shelf Life	A Side: 12 mo. B Side: 6 mo.

*The values in the Equipment Settings chart show initial optimum settings. Actual operating temperatures vary as ambient air, humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the adhesion, cured physical properties, and yield of the foam. Applicator must make adjustments depending on conditions.

TEMPERATURE SETTING EXAMPLE

If your drum temperature is 80°F (27°C) and you have a rig with a delta T of 50°F (10°C), your max spray temperature can only be 130°F (54°C). With this information it is important to know the delta T of your proportioner and drum temperature to achieve the proper spray temperature. Do NOT recirculate or agitate Enverge ToughFoam.

APPLICATION DEPTHS

Enverge ToughFoam spray foam should be applied at a minimum thickness of 0.125" and a maximum thickness of 1/2". If greater than 1/2" thickness is desired, **sprayers should wait for the first pass to reach 100°F (37°C) before applying a second pass.** For substrates with sensitivity to heat, including plastic or metal, tests should be done to understand the effect of the spray foam exotherm on the material. In some cases, applying a flash coat first is recommended to prevent any adverse effects on the substrates.

OVERSPRAY & LEAK PREVENTION

Inform the owner or builder of the need to take preventive measures that will prevent property damage due to potential overspray. Explain the precautionary measures you'll take to protect windows, doors, floors, HVAC equipment, vents or other equipment. Take preventative measures to isolate HVAC equipment, especially in retrofit applications.

It is highly recommended to lay down polyethylene film underneath the trailer and hoses to prevent damage in the event of hose rupture.

AFTER APPLICATION

INSPECT APPLICATION

Look for good cell structure and adhesion. Remove any unreacted chemical from wall due to pressure imbalances while triggering spray gun. Look for a consistent skin surface of the foam and be sure product is curing.

CLEAN UP

Clean off all overspray and overfill from the interior stud facings. Where stud cavities have been overfilled, shave off the foam face to provide a surface flush with the stud for drywall installation. Remove all masking materials.

RE-ENTRY & OCCUPANCY

ToughFoam spray foam reacts and cures within seconds of application. Re-entry can occur 1 hour after application with proper ventilation. Occupancy times will vary depending on factors including ventilation. Typically, when ventilating you need 10 air exchanges per hour for a 24 hour period following the conclusion of spray application and occupancy may occur at that time.

CODES CONSIDERATIONS

15 MINUTE THERMAL BARRIER

Federal, state, and local building codes vary. All require that spray-applied polyurethane foam insulation be covered with an approved 15-minute fire rated thermal barrier. One typically approved material is 1/2-inch gypsum wallboard (sheetrock) applied over the spray polyurethane foam insulation. However, always check with local officials for recommendations and approvals.

IGNITION BARRIER

Prescribed ignition barriers are permitted by model building codes (including the International Residential Code and the International Building Code) in lieu of thermal barriers in attics and crawlspaces where access is limited to the service of utilities. Enverge ToughFoam has been tested in accordance with AC377, Appendix X. Therefore when Enverge ToughFoam is applied in attics and crawlspaces with limited access, per the building code, the prescriptive ignition barrier may be omitted. Other limitations may apply, depending on specific project circumstances. Review the limitations in IAPMO Evaluation Report No. 5050.

FOLLOW THE MAUFACTURER GUIDELINES WHEN APPLYING THERMAL AND IGNITION BARRIER COATINGS



TOUGHFOAM[®]
CLOSED CELL SPRAY FOAM

APPLICATION GUIDE

The descriptions, data, designs, and information contained herein are presented in good faith and believed to be accurate. This information is provided for guidance ONLY. Many factors will affect the processing or application of Enverge products. It is necessary that you make tests to determine ultimate suitability for Enverge products for your particular application. All persons involved in construction projects including spray polyurethane foam have an independent obligation to ascertain that their actions are in compliance with current federal, state and local laws, codes, and regulations and should consult with legal counsel concerning such matters. The guidance is necessarily general in nature and individuals may vary their approach with respect to particular practices based on specific factual circumstance, the practicality and effectiveness of particular actions and economic and technological feasibility. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described, data, or designs presented. In no case shall the descriptions, information, data, or designs provided be considered a part of our terms and conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. You expressly agree to release Holcim Solutions and Products US, LLC from liability in tort or contract based on the technical information provided. All such information is accepted at your own risk.

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