



PRODUCT APPLICATION GUIDE

THERMOSEAL MEDIUM DENSITY CLOSED CELL FOAM PRODUCT: THERMOSEAL 2000 (2 lb.) Density Closed Cell Spray Polyurethane Foam

Additional product info. Can be found on our website: www.thermosealusa.com or by emailing: info@thermosealusa.com. Please reference the documents below and this product application guide for establishing application and storage guidelines, substrate and climate conditions.

- ThermoSeal 2000 - Technical Data Sheet
- A-PMDI SDS, ThermoSeal 2000 B-Side Resin SDS, ThermoSeal 2000 Cured Foam SDS

ThermoSeal 2000 is suitable for application to most construction materials including wood, masonry, concrete, and metal. All surfaces to be sprayed with foam should be clean, dry, and free of dew or frost. All metal to which the foam is to be applied must be free of oil, grease, etc. Two (2) - Three (3) inches should be the maximum thickness of each pass. Allow ten minutes between each pass to allow for cooling. Multiple layers can be applied to reach the desired thickness and R-value. As with all spray polyurethane foam systems, improper application techniques should be avoided. Examples of improper techniques include, but are not limited to, excessive thickness of spray polyurethane foam, off ratio material and spraying into or under rising foam. Potential results of improperly installed spray polyurethane foam include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed foam must be removed and replaced with properly installed spray polyurethane foam. It is the responsibility of the applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to a spray polyurethane foam application.

APPLICATION, PROCESSING & STORAGE GUIDELINES

STORAGE TEMPERATURE	50°F - 75°F / >10°C - >24°C	
TEMPERATURE RANGE	REACTIVITY DESIGNATION	RECOMMENDED TEMPERATURE RANGE
	(S) Summer	>45°F / >7°C
	(W) Winter	>14°F / >-10°C
MAXIMUM LIFT PER PASS	2" - 3"	
MOISTURE CONTENT OF SUBSTRATE	<20%	

PRE-HEATERS: (A) COMPONENT – ISO	125° / 51°C (Initial set point)	These are recommended “Initial” Settings and are listed from the Tech Data Sheet as starting parameters. Settings may vary based on the type of equipment used and the substrate temps at the time of application.
PRE-HEATERS: (B) COMPONENT - RESIN	125° / 51°C (Initial set point)	
HOSE HEAT	125° / 51°C (Initial set point)	
PRESSURE – INITIAL SET POINT	1,200 psi - Dynamic	
MIXING RATIO	1:1 By Volume	
DO NOT RECIRCULATE THERMOSEAL 2000. GRADUALLY WARM DRUMS TO 77°F PRIOR TO USE.		

APPLICATION GUIDELINES: Polyurethane foam systems should be processed through commercially available spray equipment designed for that purpose by a qualified professional applicator. The proportioning equipment must be capable of maintaining all designated ratios, temperature settings, etc. as shown in the settings chart. The gun should be of the internal mix type, which provides thorough blending of the two components. The equipment shall be of the heated airless type capable of maintaining 160°F at the gun by use of both primary heaters and heated hoses. The use of 2:1 transfer pumps is recommended for supplying the liquid components to the proportioner.

It is the responsibility of the professional applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to a spray polyurethane foam application.

MATERIAL HANDLING: Due to the reactive nature of these components respiratory protection is mandatory. The vapors and liquid aerosols present during application and for a short period thereafter must be considered – and appropriate protective measures taken – to minimize potential risks from overexposure through inhalation, skin, or eye contact. These protective measures include: adequate ventilation, safety training for installers and other workers, use of appropriate personal protective equipment, and a medical surveillance program. It is imperative that the applicator read and become familiar with all available information on proper use and handling of spray polyurethane foam. Additional Information is available at spraypolyurethane.org, polyurethane.org or by contacting the ThermoSeal, LLC Technical Services dept. 1.800.853.1577

PERSONAL PROTECTION EQUIPMENT: Spraying of polyurethane foam results in the atomizing of the components to a fine mist. Inhalation and exposure to the atomized particles must be avoided.

Spraying of polyurethane foam results in the atomizing of the components to a fine mist. Inhalation and exposure to the atomized droplets must be avoided. Applicators must use personal protective equipment recommended by the Center for Polyurethanes Industry for use in high-pressure spray foam application. Precautions include, but are not limited to:

- a. Full-face mask or hood with fresh air source
- b. Fabric coveralls
- c. Non-permeable gloves
- d. Solvent-resistant gloves when handling new materials and cleaning solvents.

WARNING: EXPOSURE MAY OCCUR EVEN WHEN NO NOTICEABLE ODOR IS ENCOUNTERED.

Applicators must use personal protective equipment recommended by the Center for Polyurethanes Industry for use in high-pressure spray foam application. Please visit www.spraypolyurethane.org for additional information on appropriate personal protection equipment selection and use.

SAFE HANDLING OF LIQUID COMPONENTS: When removing bungs from containers use caution, contents may be under pressure. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. For further information refer to “MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal” publication AX-119 published by the Alliance for the Polyurethanes Industry, Arlington, VA

DISSIMILAR RESINS: When changing the “B” side (resin) to another type of spray polyurethane foam it is very important that the supply hoses and pumps are completely drained. Any resin on the drum pump must be completely removed prior to insertion into the drum of the new material. Mixing of dissimilar product types (particularly closed cell into open cell) will contaminate the resin in the new drum. It is the responsibility of the applicator to follow this guideline to avoid contaminating the resin.

PROPER STORAGE OF RAW MATERIALS: Shelf life is 12 months from date of manufacture listed on drum when stored in original unopened containers at 50°F to 75°F. Store in a dry and well-ventilated area.

Raw materials must be kept warm. Cold chemicals can cause poor mixing, pump cavitation, or other process problems due to higher viscosity at lower temperatures. Storage temperatures should be 65°F to 80°F for several days before use, and should not exceed 80°F. Avoid storing drums on concrete or metal floors in cold (winter) conditions. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.

SPRAY PROCESS: ThermoSeal 2000 may be applied in passes of uniform thickness from a minimum of inch (1/2”) to a maximum of two (2”) inches. ThermoSeal 2000 must not be applied in a thickness exceeding two (2”) inches in a single pass. If this thickness is exceeded, it will adversely affect the quality and physical properties of the finished product and the internal temperature building up within the foam may cause charring or thermal degradation. Under certain conditions, applications exceeding this thickness may cause spontaneous combustion of the foam to occur, even hours after the product was applied. Allow ten (10) minutes between each pass to allow cooling of the foam product. Multiple layers can be applied in order to reach the desired thickness and R-Value desired, required or specified.

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

MECHANICAL VENTILATION REQUIREMENTS: ThermoSeal, LLC requires that a mechanical ventilation system be utilized in a workplace where ThermoSeal spray polyurethane foam is applied. The requirement for this ventilation rate during spray application and for a period of 24 hours after the spray application is complete. The mechanical ventilation system to be used in the workspace needs to be able to exhaust air directly to the exterior of the building at a minimum rate of 0.3 ACH. The volume of the workspace would need to be determined for system design. For example: If the workspace is 5,000 ft³ then the minimum capacity of the ventilation system equals 5,000 ft³ x's 0.3 ACH = 1,500 ft³ = 25 ft³/min. (CFM). Note that 0.3 ACH is a minimum ventilation rate at which most commercial ventilation fans can easily achieve. It is recommended that this level to be exceeded. The more ventilation that you use in the workspace the better. More info. Can be found in the "Guidance on Ventilation during Installation of Interior Application of High Pressure SPF", which is available from the American Chemistry Council, Spray Foam Coalition.

<http://www.spraypolyurethane.org/GoodPractices>

FINISHED FOAM PROTECTION: The finished foam surface of the ThermoSeal 2000 sprayed polyurethane foam should be protected from adverse effects of direct exposure of UV light from the sun. This exposure will cause dusting and discoloration over time. Protective coatings for use with cured polyurethane foams are available from ThermoSeal, LLC.

PROXIMITY TO HEAT SOURCES: Keep a minimum distance of three (3) inches between ThermoSeal 2000 and heat sources such as combustion appliance flues, recessed light fixtures, insulation contact rated (IC) light fixtures, fireplace flues, etc.

SKIN EXPOSURE: Immediately remove any clothing soiled by the product. Immediately wash skin with water and soap and rinse thoroughly. Remove breathing apparatus only after contaminated clothing have been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration. First Aid responders should pay attention to self-protection and use the recommended protective clothing.

INHALATION: Supply fresh air or oxygen; call for doctor.

EYE CONTACT: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

AFTER SWALLOWING: Immediately call a doctor. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

ENVIRONMENTAL PRECAUTIONS: Inform the relevant authorities if the product has caused environmental pollution. Do not allow material to enter sewers/ surface or ground water systems.

MATERIAL SPILL CONTAINMENT AND CLEAN UP: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause slipping hazard. Ensure adequate ventilation. Contain spilled material if possible. Absorb with materials such as: dirt, sand, sawdust. Collect in suitable and properly labeled containers. Wash the spill site with water.

WASTE DISPOSAL: Incinerate in a licensed facility. Do not discharge into waterways or sewer systems.

CONTAINER DISPOSAL: Steel drums must be emptied (as defined by RCRA, Section 261.7 or state regulations that may be more stringent) and can be sent to a licensed drum re-conditioner for reuse, a scrap metal dealer, or an approved landfill. Drums destined for a scrap dealer or landfill must be punctured or crushed to prevent reuse.

TECHNICAL ASSISTANCE: For additional assistance please contact the ThermoSeal Technical Services dept. 800.853.1577

DISCLAIMER: To the best of our knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. User must contact ThermoSeal, LLC to verify correctness before specifying or ordering. We guarantee our products to conform to the quality control standards established by ThermoSeal, LLC. We assume no responsibility for coverage, performance or injuries resulting from use. Liability, if any, is limited to replacement of the product. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY THERMOSEAL, LLC. EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Emergency Notifications: Contact CHEMTREC for Material Spills, Leaks or Fire (800) 424-9300