GENERAL COATINGS MANUFACTURING CORP.

TECHNICAL DATA SHEET
FOR PROFESSIONAL CONTRACTOR USE ONLY

ULTRA-THANE 230 HFO ROOFING
SPRAY POLYURETHANE FOAM

ULTRA-THANE 230 HFO ROOFING is a closed-cell, two-component, spray-in-place, rigid monolithic, exterior spray, polyurethane foam that bonds to traditional roof substrates. Ultra-Thane 230 HFO Roofing Foam creates a seamless waterproof barrier which can be installed in additional thickness to create a positive slope to drain on flat roofs.

Ultra-Thane 230 HFO Roofing Foam is a fluid applied, fully adhered membrane, providing superior performance in minimizing heat transfer, condensation and air leakage. Ultra-Thane 230 HFO Roofing Foam is based on Low GWP hydrofluro-olefin (HFO) Technology to expand the polyurethane polymer into a cellular insulation.

RECOMMENDED USES

Ultra-Thane 230 HFO Roofing Foam is used as a superior thermal insulation and waterproofing product for new roof construction, roof recovery, cold storage and insulated tanks. It is sustainable, lightweight, self-flashing, energy efficient and most commonly formulated in 2.5 lbs, 2.7 lbs and 3.0 lbs

PACKAGING

Ultra-Thane 230 HFO Roofing Foam is sold in 1,000 lbs, two-component drum kits. Side-A totes are available upon request.

NOMINAL CURED PHYSICAL PROPERTIES

Property	ASTM Standard	2.5 Density	2.7 Density	3.0 Density
Sprayed-In-Place Density	D1622	2.5	2.7	3.0
R Value Aged at 1 inch	C518	6.9	6.9	6.9
R Value Aged at 3.5 inches	C518	6.65	6.65	6.65
Dimensional Stability	D2126-C1029	4.5%	4.5%	4.5%
Compressive Strength	D1621	40-45 psi	46 psi	50-60 psi
Tensile Strength	D1623	60 psi	75 psi	90 psi
Shear Strength	C273	45 psi	50 psi	50-60 psi
Closed Cell Content	D1940	95%	95%	98%
Water Vapor Transmission	E96	1.12 perms	1.12 perms	1.12 perms
Water Absorption	D2842	.62%	.62%	.62%
Wind Uplift	FM4470	>I-450	>I-450	>I-450

This information is intended only as a guide for design purposes. The values shown are the average values obtained from laboratory prepared samples and results may vary with application conditions, equipment and technician. K-Factor varies depending on age and use conditions.
The information contained herein is for purposes of identifying the product and does not constitute a warranty that the product will conform to that description. Product specifications and performance will vary depending on application methodologies, raw materials and other factors.

BUILDING AND FIRE CODES

FIRE HAZARD CLASSIFICATIONS*	
Surface Burning, ASTM E-84/UL 723	
4"	<75
Fire Tests of Roof Coverings, ASTM E108	
Class A, Class B	New Construction
Class A, Class B	Maintenance and Repair
*These numerical flame-spread ratings are not intended to reflect conditions.	

- Underwriters Laboratories, Inc., File #14330 listed and classified.
- Meets the current standard ICC1100-C1029.
- California State Fire Marshall listed and compliant.
- Meets the Florida Building Code -FL 28114 compliant with HVHZ.
- FM – Approval Pending (May-June 2024)
- Exterior use only. Not for use on Interior Applications.

PROCESSING GUIDE

PROCESSING CHARACTERISTICS			
Property	**Sprayed***		
Reactivity Grades	Winter	Regular	Summer
Cream Time	1-2 Seconds	1-2 Seconds	1-2 Seconds
Rise Time	4-5 Seconds	5-6 Seconds	6-7 Seconds
Tack Free	On Rise	On Rise	On Rise
*Specific reaction times and densities are available by request.			

LIQUID COMPONENT PROPERTIES			
Property	**2.5 Density**	**2.7 Density**	**3.0 Density**
Viscosity @ 25°F Component A Component B	 200 650	 200 675	 200 700
Specific Gravity @ 25°F Component A Component B	 1.24 1.14	 1.24 1.15	 1.24 1.15
Mix Ratio	50/50	50/50	50/50
*Nominal 1" thickness sprayed through Graco E30 Proportioner with GX-7. Preheat set at 110°F-125°F , hose heat set to maintain 110°F -125°F at the spray gun. Reaction times are influenced by mix efficiency of the spray gun, temperature of the components, ambient conditions, and thickness of the foamed mass.			

REQUIREMENTS

Ultra-Thane 230 HFO Roofing Foam is a sophisticated plural component building product which should be applied only by trained and manufacturer-approved roofing experts familiar with the properties of this material.

SUBSTRATE TEMPERATURE

Ultra-Thane 230 HFO Roofing Foam may be applied to surfaces with temperatures as low as 50°F (10°C) in most instances.

REACTIVITY GRADES AND TEMPERATURE RANGES		
Winter	**Regular**	**Summer**
50-60°F	65-85°F	Above 90°F
10-15°C	18-29°C	Above 32°C

SUBSTRATE PREPARATION

For optimum results, the roof surfaces should be primed using Ultra-Bond products. Untreated ferro-metallic substrates should be primed in accordance with SPFA Guidelines. All clean metal surfaces should be primed immediately with an approved primer.

Galvanized and stainless-steel surfaces should be treated with an appropriate wash primer prior to the application of Ultra-Thane 230 HFO Roofing.

Porous substrates such as wood and concrete may not require priming if surfaces are clean and dry with less than 10% moisture content. **FOR BEST RESULTS ON SURFACES WHERE MOISTURE CONTENT CANNOT BE DETERMINED OR CONTROLLED, AN EPOXY SEALING PRIMER IS RECOMMENDED.** Consult General Coatings Manufacturing Corp. for specific application requirements.

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EQUIPMENT
Proportioning equipment shall be manufactured specifically for the application of polyurethane foam. Mixing ratio by volume is 50 parts "A" to 50 parts "B". Equipment shall be of the heated airless type, capable of maintaining 120°F to 140°F (49 to 60°C) mixed material at the spray gun. Optimum spraying temperature will vary as a function of substrate and ambient conditions.

SPRAYING
Ultra-Thane 230 HFO Roofing Foam should be installed in uniform passes ranging from ½" to 1 ½" per pass. Pass thicknesses will vary as a function of substrate temperature and applicator technique. Ultra-Thane 230 HFO Roofing Foam bonds best when previous pass is still warm (above 70°F). Ultra-Thane 230 HFO Roofing Foam performs best when coated the same day of application, however it may be left exposed for up to 24 hours. In the event that Ultra-Thane 230 HFO Roofing is exposed for a period greater than 24 hours, please contact General Coatings Manufacturing Corp. for recommendations.

CLIMATIC CONDITIONS: No spraying should be done when moisture is present in the form of rain, dew or relative humidity greater than 80%, or when there is wind in excess of 15 mph.

SPECIAL NOTE
Particular attention must be paid to coating selection in cold storage or below 0°F (-18°C) freezer applications where a vapor drive may be present. Consult General Coatings Manufacturing Corp. technical service personnel for specific system recommendations.

LIMITATIONS
Ultra-Thane 230 HFO Roofing Foam is specifically designed as insulation for construction applications where the end use ambient temperature range will be maintained from -100°F to 200°F (-79 to 99°C). When considering any other use for this product, consult General Coatings Manufacturing Corp. for specific application recommendations.

ELASTOMERIC COATING
Ultra-Thane 230 HFO Roofing Foam must be top coated with an approved UV reflective elastomeric coating. All coatings shall be applied in accordance with General Coatings Manufacturing Corp. or other coating manufacturer's instructions.

JOB-SITE PROTECTION
Overspray from Ultra-Thane 230 HFO Roofing Foam can carry considerable distances and attention should be given to the following:

1. Post warning signs a minimum of 100 feet from the work area.
2. Cover all intake vents near the work area.
3. Minimize or exclude all personnel not directly involved with the spray application.
4. No welding, smoking or open flames.
5. Have CO_2 or other dry chemical fire extinguisher available at the job-site.
6. Provide adequate ventilation.

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.

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.

SHELF LIFE AND STORAGE
The shelf life of Ultra-Thane 230 HFO Roofing Foam is 6 months from the date of manufacture when stored in original unopened containers at temperatures between 50–75°F (10-24°C). Temperatures above 75°F may decrease shelf life. Additionally, storing the B component at increased temperatures or in direct sunlight for prolonged periods may cause a buildup of pressure in the storage vessel. Use caution in opening containers of Ultra-Thane 230 HFO Roofing Foam. Containers should be opened slowly to allow the release of any pressure buildup. Material temperature should be confirmed with a thermometer or an infrared gun.

FREIGHT CLASSIFICATION
Liquid Plastic Material - NOIBN

HEATH AND SAFETY

A Safety Data Sheet (SDS) has been prepared on the Ultra-Thane 230 HFO Roofing Foam. All personnel who will come in contact with the product should read and understand the 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.

Spray Polyurethane Foam Alliance (SPFA®): AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings. www.Sprayfoam.org

The Center for the Polyurethanes Industries (CPI): Model Respiratory Protection Program for Compliance with the Occupational Safety and Respiratory Protection Program Standard 29 CFR§1910134. www.spraypolyurethane.org.

PERSONAL PROTECTIVE EQUIPMENT

Ultra-Thane 230 HFO Roofing Foam requires personal protective equipment, such as, approved vapor cartridge respirator, safety glasses, gloves and protective clothing. Spray Foam (A-Side) contains polymeric MDI isocyanate, which is a vapor inhalation and skin hazard. See Safety Data Sheet for best practices and health risks.

VAPOR INHALATION

The best form of protection against organic solvents or potentially sensitizing vapors in the workplace is a fresh air supply. In well-ventilated roofing application conditions, the use of Type C organic vapor cartridge respirators is acceptable. For poorly ventilated conditions, full face masks or NIOSH/MSHA approved fresh air systems are recommended, like 3M and MSA.

Effects of overexposure to vapor are characterized by nasal and respiratory irritation, dizziness, nausea, headache, fatigue, possible unconsciousness or even asphyxiation. Vapor inhalation problems are characterized by coughing, shortening of breath and tightness in the chest. Anyone exhibiting these types of symptoms should be immediately removed from the workplace and administered oxygen or fresh air. If the condition is prolonged or extreme, SUMMON EMERGENCY TRAINED MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT

To prevent excessive skin contact with the sprayed product, we recommend use of fabric coveralls and neoprene or other resistant gloves. Skin contact with liquid components can result in a rash or other irritation. Wash the affected skin area with soap and water. Wipe residual liquid from the skin with a clean cloth, then wipe the affected area with 30% solution of rubbing alcohol. Follow the alcohol wipe with repeated washings with soap and water. If a rash or other irritation develops, see a physician.

EYE CONTACT

Wear a full-face mask or OSHA-approved protective goggles. Eye Contact with liquid or sprayed components can result in corneal burns or abrasions. Upon exposure, eyes should be flushed with water for an extensive period. Summon Emergency Trained Medical Attention Immediately.

TECHNICAL SERVICES

Additional information, such as brochures, technical assistance, roof energy evaluations, life cycle cost analysis, and other roof management services are also available from a General Coatings Manufacturing Corp. Technical Consultant.

CAUTION

This roofing insulation product is combustible under many fire conditions and is an exterior grade spray foam. Not intended or fire classified for interior use.

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