GENERAL COATINGS MANUFACTURING CORP.

# TECHNICAL DATA SHEET

## ULTRA-THANE 230 ROOFING

# RIGID POLYURETHANE FOAM

**PRODUCT DESCRIPTION**

ULTRA-THANE 230 is a two component spray-in-place rigid monolithic polyurethane foam insulation. This product can be formulated in a variety of densities to accommodate a broad range of applications. ULTRA-THANE 230 contains no ozone-depleting chemicals.

**USES**

**ROOFING:** ULTRA-THANE 230 is used extensively as a superior thermal insulation and waterproofing product for new and remedial roofing.

**COLD STORAGE:** ULTRA-THANE 230 is the insulation of choice for maintaining the rigid climatic conditions of many cold storage buildings.

**TANK INSULATION:** ULTRA-THANE 230 is an excellent insulation for hot and cold storage vessels.

**BUILDING AND FIRE CODES**

Local Building Athoritys should be consulted if ULTRA-THANE 230 is used as an insulation material on interior applications.

ULTRA-THANE 230 is listed and complies with the California State Fire Marshall

ULTRA-THANE 230 has been independently tested (Report #: 319356MDI-002) and evaluated by ICC and determined to meet the following building codes: IBC, IRC and IECC. Additionally ULTRA-THANE 230 meets the "Standard Test Methods for Fire Tests of Roof Coverings" and exceeds ASTM E84/UL 790 (A) and ASTM E108/UL 723 fire ratings.

## Fire Hazard Classifications*

| SURFACE BURNING ASTM E-84/UL 723 | | FLAMMABILITY ROOF DECK CONSTRUCTION ASTM E-108/UL 790 | |
|---|---|---|---|
| Flame Spread | <75 | Class A | New Construction |
| | | Class A | Maintenance and Repair |

*These numerical flame spread ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions.

## Liquid Component Properties

| PROPERTY | DENSITY 2.5 | 2.7 | 3.0 |
|---|---|---|---|
| Viscosity 25°C | | | |
| Component A | 200 | 200 | 200 |
| Component B | 500 | 550 | 625 |
| Specific Gravity 25°C | | | |
| Component A | 1.24 | 1.24 | 1.24 |
| Component B | 1.19 | 1.19 | 1.18 |
| Mix ratio by volume (A/B) | 50/50 | 50/50 | 50/50 |

# Processing Characteristics

| PROPERTY | 72°F(HAND MIX) | | | SPRAYED* | | |
|---|---|---|---|---|---|---|
| | Winter | Regular | Summer | Winter | Regular | Summer |
| Cream Time | 4 Sec. | 5 Sec. | 6 Sec. | 1-2 Sec. | 1-2 Sec. | 1-2 Sec. |
| Rise Time | 15-16 sec. | 19 sec. | 22 sec. | 4-5 sec. | 5-6 sec. | 6-7 sec. |
| Tack Free | On Rise | On Rise | On Rise | On Rise | On Rise | On Rise |

*Nominal 1" thickness sprayed through Gusmer Model H-11 proportioner with GX-7 Gun: preheat set at 110°F, hose heat set to maintain110°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.

# Nominal Cured Physical Properties

| PROPERTY | ASTM TEST METHOD | DENSITY 2.5 | DENSITY 2.7 | DENSITY 3.0 |
|---|---|---|---|---|
| Sprayed-in-place Density | D-1622 | 2.5 | 2.7 | 3.0 |
| K-factor Aged | C-518 | .15 | .15 | .16 |
| Compressive Strength | D-1621 | 40-45 psi | 46 psi | 50-60 psi |
| Tensile Strength | D-1623 | 60 psi | 75 psi | 90 psi |
| Shear Strength | C-273 | 45 psi | 50 psi | 50-60 psi |
| Closed Cell Content | D-1940 | 95% | 95% | 98% |
| Water Vapor Transmission | C-355 | 1.8 perms | 1.8 perms | 1.8 perms |
| Water Absorption | D-2842 | .017 | .017 | .017 |
| Wind Uplift | FM-4470 | >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*

# Dimensional Stability Properties
# ASTM D-2126

| DAYS | °F | °C | %R.H. | AV |
|---|---|---|---|---|
| 28 | -20 | -29 | DRY | N/C |
| 28 | 158 | 70 | 100% | +7% |
| 28 | 158 | 70 | DRY | +1% |

## SHELF LIFE

Shelf life of ULTRA-THANE 230 is 6 months from the date of manufacture when stored in original unopened containers at temperatures between 50° - 75° F. Temperatures above 75° F may decrease shelve life.

## FREIGHT CLASSIFICATION

Liquid Plastic Material -- NOIBN

## *CAUTION*

***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-resistive thermal barrier which has a finish rating of not less than 15 minutes.***

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# Processing Guide

## DESCRIPTION AND GENERAL USE

ULTRA-THANE 230 systems are light density spray polyurethane insulations designed to be fluid-applied to construction surfaces to effect a permanent, monolithic and dimensionally stable thermal insulation.

ULTRA-THANE 230 systems are a sophisticated plural component building product which should be applied only by trained and manufacturer-approved insulation experts familiar with the properties of this material.

ULTRA-THANE 230 systems are specifically designed as insulation for construction applications where the end use ambient temperature range will be maintained between -100°F and 225°F. When considering any other use for this product, consult **General Coatings Manufacturing Corp.** for specific application recommendations.

## SUBSTRATE PREPARATION

For optimum results, surfaces to receive ULTRA-THANE 230 should be clean and dry, free of dirt, oil, solvent, grease, loose particles, peeling coating and other foreign matter. Untreated ferrometallic substrates should be sandblasted in accordance with SSPC-SP6. Sandblasted 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.

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, PRIMING IS RECOMMENDED.** Consult **General Coatings Manufacturing Corp.** for specific application requirements.

## SUBSTRATE TEMPERATURE

ULTRA-THANE 230 systems may be applied to surfaces with temperatures as low as 50 deg. in most instances. Please consult with General Coatings Manufacturing Corp. techincal representatives for certain requirements.

**AMBIENT AIR TEMPERATURE**

| Winter | Regular | Summer |
|---|---|---|
| 50 - 60°F | 65 - 85°F | Above 90°F |

**GENERAL COATINGS MANUFACTURING CORP. TECHNICAL SERVICE PERSONNEL SHOULD BE CONSULTED IN ALL CASES WHERE APPLICATION CONDITIONS ARE MARGINAL.**

## EQUIPMENT

Proportioning equipment shall be manufactured by Gusmer, Graco or Glas-Craft. Mixing ratio by volume is 50 parts "A" to 50 parts "B". Equipment shall be heated airless type, capable of maintaining 120°F to 140°F mixed material at the spray gun. Optimum spraying temperature will vary as a function of substrate and ambient conditions.

## SPRAYING

ULTRA-THANE 230 systems should be deposited in uniform passes ranging from 1/2" to 1 1/2". Pass thicknesses will vary as a function of substrate temperature, ambient air temperature and machine output. ULTRA-THANE 230 systems bond best to themselves when the previous pass is still warm (above 70°F). ULTRA-THANE 230 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 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 m.p.h.

## PROTECTIVE COATING

ULTRA-THANE 230, when applied to exterior weathering surfaces, must be top coated with an approved elastomeric coating. All coatings shall be applied in accordance with **General Coatings Manufacturing Corp.** or other coating manufacturer's instructions.

## FIRE AND THERMAL BARRIER

ULTRA-THANE 230 polyurethane insulation systems are combustible under many fire conditions. A fire and thermal protection have a UL rated 15-minute finish rating should be used to cover all ULTRA-THANE 230 systems used on interior wall or ceiling applications.

## *SPECIAL NOTE*

*Particular attention must be paid to coating selection In applications where a vapor drive may be present. Consult **General Coatings Manufacturing Corp.** technical service personnel for specific system recommendations.*

## STORAGE

Both liquid components of ULTRA-THANE 230 systems should be stored in original unopened containers at temperatures between 50°F and 75°F Note: Storage for prolonged periods of time at high temperatures may alter the reactivity profile of the product. Additionally storaging the B component at increased temperatures or in direct sunlight for prolonged periods may cause a build up of pressure in the storage vessel. Use caution in opening containers of ULTRA-THANE 230. Containers should be opened slowly to allow the release of any pressure buildup.

# Safety, Health & Toxicity Data

A Material Safety Data Sheet (MSDS) has been prepared on the ULTRA-THANE 230 systems. All personnel who will come in contact with the product should read and understand the MSDS.

## PROTECTIVE EQUIPMENT

Since the ULTRA-THANE 230 systems are atomized into a very fine particle distribution during spray application, it is essential that maximum effort is made to protect the spray mechanic and others near the workplace from undue exposure. Component "A" ULTRA-THANE systems are polymeric isocyanate and, as such, can be very sensitizing, particularly from the standpoint of **VAPOR INHALATION**. Some other ingredients may be sensitizing from the standpoint of **SKIN CONTACT OR EYE CONTACT**.

## VAPOR INHALATION

The best form of protection against isocyanate or potentially sensitizing vapors in the workplace is a fresh air supply. Numerous manufacturers, including the 3M Company and MSA, make full face fresh air masks. For maximum protection, we recommend use of NIOSH/MSHA approved self-contained breathing apparatus with a full-face piece operated in a positive pressure mode. In well-ventilated application conditions, the use of Type C organic vapor cartridge respirators may be acceptable.

## SKIN CONTACT

To prevent excessive skin contact with the sprayed product, the use of fabric overalls and fabric gloves is recommended.

## EYE CONTACT

Wear a full face mask or OSHA-compliant protective goggles.

## PROTECTION OF THE WORKPLACE

Overspray from ULTRA-THANE 230 systems 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 jobsite.
6. Provide adequate ventilation.

## FIRST AID CONSIDERATION

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** with liquid components can result in a rash or other irritation. Wash any affected skin area with clean water. Wipe residual liquid from the skin with a clean cloth, then wipe the affected area with a 30% solution of rubbing alcohol. Follow the alcohol wipe with repeated washings using soap and water. If a rash or other irritation develops, **SEE A PHYSICIAN**.

**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**.