VOLATILEFREE INC™
MANUFACTURERS OF HIGH PERFORMANCE POLYMERS

Data Sheet
VFI-714 Polar Grade

CLOSED CELL POLYURETHANE SPRAY FOAM INSULATION

- **Description**
  VFI-714 Polar Grade, is a closed cell, medium density, rigid polyurethane foam. It is a two component, liquid applied, HFC blown foam with a high insulating value and provides additional structural integrity. This product is considered a vapor barrier at 2 ½ inches therefore providing high performance moisture reduction and excellent resistance in heat transfer.

- **Usage**
  VFI-714 Polar Grade is used to insulate wall cavities, attic spaces, ceilings, floors and filling sill plates to seal and insulate. It can also be used for insulating tanks, coolers, freezers, duct work and many other miscellaneous structures. Max service temperature is 180°F.
  VFI-714 is not intended for roof decks because of its lower density.

Physical Properties

- **Nominal Density, Sprayed**
  ASTM D-1622
  PCF 1.7

- **Compressive Strength**
  ASTM D-2856
  Parallel (psi): 29 @ 12%

- **Closed Cell Content**
  ASTM D-2856 >90%

- **Thermal Conductivity**
  BTU/hr ft^2 F/in Factor @ 20°F
  ASTM C-518
  Initial: 0.1291

- **Thermal Resistance**
  BTU/hr ft^2 F/in Factor @ 20°F
  ASTM C 518
  Initial: 7.7

- **Humid Aging % Volume Change, 158°F (70°C), 100% RH**
  ASTM D-2126
  6 days +3%

- **Cold Aging % Volume Change, -20°F (-29°C)**
  ASTM D-2126
  6 days: -1.0%

- **Dry Aging % Volume Change, 158°F (70°C)**
  ASTM D-2126
  6 days: +3%

- **Permeance**
  Less than 1 perm at 2 ½ inches

Weather & Environmental Performance

- **Toxicity**
  Skin contact or inhalation of Isocyanate can cause sensitization. Individuals with asthma, respiratory disease or allergies should not work with sprayed polyurethanes. Please see Material Safety Data sheet for appropriate PPE.

- **Fire Testing**
  Not rated

Liquid Component Properties

- **Viscosity @ 20°C**
  ASTM D-1638
  Poly Component 1,200-1,400 cps
  ISO Component 100-150 cps

- **Specific Gravity @ 20°C**
  ASTM D-1638
  Poly Component 1.16
  ISO Component 1.23

Application

- **Mixing Ratio**
  By volume
  % “A” 100
  % “B” 100

VFI-714 Polar Grade

Spray Reactivity

Cream time	1 second
Tack free	on rise
Cure	4 hours

Surface Preparation

Substrate must be clean and dry. VFI-714 Polar Grade is to be applied between 28-50˚F.

Moisture in any form, excessive humidity (>85%R.H.) rain, fog, or ice will adversely affect the system performance and corresponding physical properties. Application should not take place when the ambient temperature is within 5ºF of the dew point.

Wind speeds in excess of 15 miles per hour might result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun. This will affect foam surface texture, cure, and physical properties and will cause overspray issues.

Equipment

A high pressure machine set to 1:1 ratio, 1000-1400 psi capability (Dynamic pressure) and 2:1 transfer pump is required. Hose heat and component heaters must provide and maintain 130°F. (Pressure and temperature will depend on hose length and equipment capabilities)

Application Parameters

Store at 65- 85°F in a dry and well-ventilated area. Material in containers should be maintained at 65 -75°F while in use. Heated trailers, hotboxes, or heated tank storage may be necessary.

Material temperature should be confirmed with a thermometer or IR gun. Some equipment may require you to heat drums to achieve optimum material temperature.

To enhance adhesion apply a 1/8” flash coat of VFI-714 Polar Grade to the surface before proceeding with the first lift. Apply up to 2” lifts. When applying a second pass, wait for the foam to cure and cool 10 minutes first. If additional passes are needed, allow a 30 minute curing time between the passes for optimal foam processing. Foam sprayed too thick and too quickly can get hot and char or self-ignite.

Precautions

Keep Polyol drums out of direct sunlight. Store drums below 80°F. Open small bung slowly to relieve pressure. Do no agitate Polyol drum.

Do not apply more foam than can be coated in a day. Welding or hot work should be completed before application of foam.

Spray crews must wear appropriate personal protective equipment. Dispose of empty drums properly.

Warning!

Do Not Leave Foam Exposed or Unprotected
Polyurethane foam is a serious fire hazard if improperly used.

Each person or company engaged in the manufacture, production, application, installation of polyurethane foam should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outlined in local, state and federal guidelines.

These physical property results are typical for this material as applied at our development facility under controlled conditions. The resulting properties can vary with changes in the application parameters; i.e., temperatures, thickness, metal embossment, processing equipment, mix head variations, throughout, etc.

Therefore, these published properties are useful for evaluation guidelines. Physical property specifications should be determined from actual production processed material.

Polyurethane foam utilized as an interior insulation system, must be protected by an approved 15 minute, fire rated thermal barrier and meet federal, local & state building code approvals.

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