



Product Data Sheet

SPF+ 2.8 HFO

DESCRIPTION

Rev: June 2023

SPF+ 2.8 HFO is a sprayed-in-place, high compressive strength, rigid, Low GWP, closed-cell spray polyurethane foam (SPF) roofing system. This two-component SPF consists of SPF+ 2.8 HFO B component resin and SPF ISO A component. SPF+ 2.8 HFO provides an R-value of 6.2 – 6.8 per inch and a continuous insulation without thermal breaks. SPF+ 2.8 HFO roofing systems provide excellent wind uplift resistance, are self-flashing, seamless, and the closed-cell nature provides a durable, leak-resistant roofing system. This polyurethane roofing foam does not contain any CFC, HCFC, HFC or ozone depleting blowing agents.

TYPICAL PHYSICAL PROPERTIES

PROPERTY*	METHOD	TYPICAL VALUE
Cured Foam:		
Density (Core)	ASTM D1622	2.6 – 2.8 pcf
Thermal Resistance (aged 180 days)	ASTM C518	6.5°F·ft ² ·h/Btu at mean temperature 24°C (75°F)
Dimensional Stability (70°C, 97% RH)	ASTM D2126	< +5.0% vol.
Water Absorption	ASTM C2842	0.9%
Water Vapor Permeance	ASTM E(^, Proc. B	<2.0 perm (1 inch)
Compressive Strength (psi)	ASTM D1621	45 – 55 psi
Tensile Strength (psi)	ASTM D1623	50 – 60 psi
Open Cell Content	ASTM D6226	<6%
Closed Cell Content (%)	ASTM D6226	>94%
Surface Burning Characteristics:	ASTM E84	20 FSI/450 SDI
<small>*Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.</small>		

INTENDED USES

SPF+ 2.8 HFO coated with Mule-Hide designated roof coating systems can be used in most retrofit roofing applications as a roofing system in conjunction with Mule-Hide roof coatings. This product is intended for use by qualified contractors trained in the processing and application of SPF.

FEATURES AND BENEFITS

- Closed-cell SPF provides a lightweight, fully adhered, monolithic, sustainable air barrier and thermal insulation
- Lightweight
- Superior yield reduces cost and amount of material required
- Enhances wind uplift resistance – fully adhered roof system
- Yields a smooth surface, reducing the need for extra coating
- Excellent adhesion to most surfaces
- Self-flashing, seamless application
- Low global warming potential (LGWP). Meets state and US or Canadian federal regulations

Product Data Sheet

SPF+ 2.8 HFO

REACTIVITIES

SPF+ 2.8 HFO Series SPF Reactivity Grades	
SPF+ 2.8 HFO Reactivities	Recommended Ambient Temp Range
SPF+ 2.8 HFO VS (Very Slow)	100° – 125°F (38° – 52°C)
SPF+ 2.8 HFO S (Slow)	85° – 110°F (29.5° – 43°C)
SPF+ 2.8 HFO R (Regular)	65° – 90°F (18° – 32°C)
SPF+ 2.8 HFO F (Fast)	45° – 70°F (10° – 24°C)

INSTALLATION

1. SPF roofing systems should be processed through commercially available spray equipment designed for that purpose by a qualified professional applicator. It is the responsibility of the professional applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to the processing and application of plural component polyurethane foam.
2. All surfaces to be sprayed with SPF+ 2.8 HFO should be clean, dry, and free of all oil, grease, dirt and contaminants.
3. Prior to application of the SPF+ 2.8 HFO, the substrate should be between 45° – 160°F (7° – 71°C). Service temperatures for any surface to be sprayed with SPF should not exceed 180°F (82°C). Moisture, such as, rain, fog, frost, dew, or high humidity (>85%R.H.) will adversely affect the SPF formation and physical properties of the finished product. Wind velocities of excess of 15 mph may affect the SPF surface texture, cure, and physical properties, as well as cause possible overspray problems.
4. A and B component material heater temperatures should be set according to ambient temperature and substrate conditions. A typical starting range is 110°F (43°C) for the A component and 120°F (49°C) for the B component; hose heat should be set to maintain these temperatures. Set the dynamic fluid pressure at 1,000 to 1,200 psi. Mixing ratio through the Proportioner is 1:1 by volume. 2:1 transfer pumps are recommended to provide positive feed from the material to the proportioner. These are recommended initial settings and may vary based on specific equipment and project conditions.
5. Each “pass” or layer of the SPF+ 2.8 HFO should be at least 0.5 inches (13 mm) and no more than 1.5 – 2.0 inches (38 - 51 mm) thick. Allow at least 10 minutes between each pass for cure and cooling. Multiple layers can be applied to reach the desired thickness and insulation value, as well as to facilitate positive drainage.
6. The surface of the SPF+ 2.8 HFO polyurethane foam must be protected from the adverse effects of sunlight (UV), which can cause discoloration and degradation. The protective coating or covering should be applied over the SPF the same day as the SPF is applied or within 24 hours. A variety of protective coatings designed for use with SPF+ 2.8 HFO are available from Mule-Hide.

Review Mule-Hide specifications and details for complete installation information. Please contact Mule-Hide Technical Department for more information.

PRECAUTIONS

- SPF+ 2.8 HFO is not designed for interior insulation applications.
- In addition to reading and understanding the A and B components Safety Data Sheet (SDS), all applicators must use appropriate respiratory protection as well as Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems.
- Large masses of SPF should be removed to outside safe area, cut into smaller pieces, and allowed to cool before discarding to prevent heat buildup and potential fire hazard.
- SPF is combustible. Heat sources such as welding, cutting, or roofing torches must not be used in contact with or in close proximity to SPF+ 2.8 HFO or any SPF.
- Protect A and B components from moisture contamination.
- Application should not take place within 5°F (-15°C) of the dew point.

SHELF LIFE AND SHIPPING

Packaging: SPF ISO A component is packaged at 551 lbs. (250 kg) per drum
SPF+ 2.8 HFO B component is packaged at 500 lbs. (227 kg) per drum
1,051 lbs. (477 kg) per set A & B net

Product Data Sheet

SPF+ 2.8 HFO

Shelf Life: 12 months for A Component when stored in original unopened containers in dry area between 50°F (10°C) and 80°F (26.7°C)
6 months for B Component when stored in original unopened containers in a dry area between 50°F (10°C) and 80°F (26.7°C).

Shipping Information:

Container Size – A Component -55 gallon drum (208.2L)
Container Size – B Component -55 gallon drum (208.2L)
Gross Weight – A component – 591 lbs. (268Kg), Class 55
Gross Weight – B component – 540 lbs. (245 kg), Class 55
Dot Classification: Liquid Plastic Material – NOIBN
Protect from freezing (40°F/4.5°C) during shipping and storage.

RATINGS AND APPROVALS

Meets ASTM C1029 – Type III, Type IV, and D7425 Standards for Spray Polyurethane Foam
Meets ICC Acceptance Criteria 377
Meets IBC/IRC (IBC 1507.14 and IRC R905.14) requirements for Foam Plastic Roofing Systems
UL 790 – R13850 Listings
California BEARHFTI Listed
UL GreenGuard and GreenGuard Gold Certified

PROTECTION & SAFETY

Mule-Hide maintains Safety Data Sheets on all of its non-exempt products. Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers. Mule-Hide's Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Mule-Hide products in your facilities.

ADDITIONAL INFORMATION

The information given in this PDS is subject to change without notice. Always check the Mule-Hide website at www.mulehide.com for the latest information, changes and updates or contact Mule-Hide Products Company at 800-786-1492.

DISCLAIMER

The statements, descriptions, designs, data and information contained herein provided concerning the material shown are intended as a guide for material usage and are presented in good faith and believed to be true and accurate at the time of printing. Because many factors may affect processing or application/use, Mule-Hide recommends that the reader make tests to determine the suitability of a product for a particular purpose prior to use. No statement made by anyone may supersede this information, except when done in writing by Mule-Hide Products Co., Inc. Since the manner of use is beyond our control, Mule-Hide does not authorize anyone to make any warranty of merchantability or fitness for any particular purpose or any other warranty, guarantee or representation, expressed or implied, concerning this material. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or designs, data or information set forth, or that the products, designs, data or information may be sued without infringing the intellectual property rights of others. Further, the descriptions, designs, data, and information furnished by Mule-Hide hereunder are given gratis and Mule-Hide assumes no obligation or liability for the description, designs, data or information given or results obtained, all such being given and accepted at the reader's risk. This product may be eligible for a Mule-Hide warranty, please check the Mule-Hide website at www.mulehide.com or contact Mule-Hide directly at 800-786-1492 for details. Buyer and user accept the product under these conditions and assume the risk of any failure, any injury person or property (including that of the user), loss or liability resulting from the handling, storage or use of the product whether or not it is handled, stored or used in accordance with the directions or specifications. Mule-Hide must be notified in writing of any claims and be given the opportunity to inspect the alleged failure before repairs are made.

Warning: These products can be used to prepare a variety of polyurethane products. Polyurethanes are organic materials and must be considered combustible.