



# **PRO** poly foam

## Technical Product Data

### SF 4228 Series

#### Spray Foam Roofing Material

#### **BASIC USES & DESCRIPTION:**

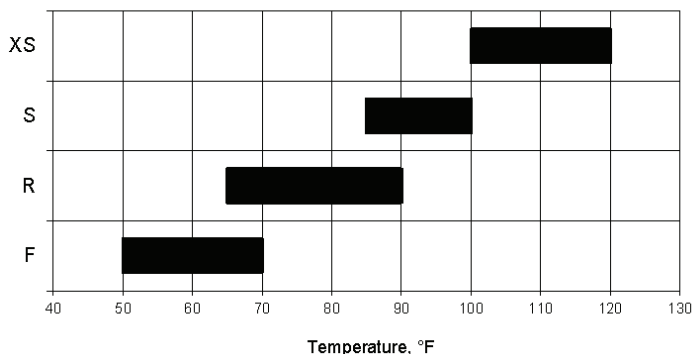
**SF 4228 Series** is an HFC-blown, Zero Ozone-Depleting (Zero-ODP), spray polyurethane foam (SPF) system designed for roofing applications.

#### **GENERAL INFORMATION:**

SF 4228 Series is a technically advanced SPF system intended for use by qualified contractors trained in the processing and application of SPF roofing systems as well as the plural-component polyurethane dispensing equipment required to do so. Contractors and applicators must comply with all applicable and appropriate storage, handling, processing and safety guidelines. Progressive Materials technical service personnel should be consulted in all cases where application conditions are questionable.

The SF 4228 Series SPF roofing system is available in several reactivity "grades": XS (Extra Slow), S (Slow), R (Regular) and F (Fast). Some suggested ambient temperature ranges for each of the reactivity grades is included below.

**Suggested Ambient Temperature Ranges**



The temperature ranges pictured above are meant as general suggestions only. Ultimately, the experience of the applicator should determine which reactivity grade is best suited for any specific combination of substrate (composition, location, color, etc.) and ambient conditions. Please contact your Progressive Materials representative with any questions or for more specific assistance.

#### **CAUTIONS & RECOMMENDATIONS:**

SF 4228 is designed for an application rate of 1/2 inch minimum to 2 inches maximum. Once installed and material has cooled, it is possible to add additional applications in order to increase the overall installed thickness of SPF. This application procedure is in compliance with the SPFA industry guidelines for the application of SPF.

SF 4228 is **NOT** designed for use as an **INTERIOR** insulation system. Progressive Materials, LLC offers a separate line of products for interior insulation applications. For more information please contact your sales representative.

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Cold-storage structures, such as refrigerators and freezers demand special design considerations with regard to thermal insulation and moisture-vapor drive. SF 4228 should **NOT** be installed in these types of constructions unless the structure was designed by a design professional for specific use as cold storage.

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This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

### TYPICAL PROPERTIES

Test Properties	Value	Test Procedure
<b>As Supplied</b>		
Specific Gravity @ 70°F	1.18	ASTM D 1638
Viscosity @ 70°F (cps)	500 - 800	Brookfield
<b>As Cured</b>		
Mix Ratio (volume:volume)	1:1	
Density (pcf)	2.7 – 2.9	ASTM D 1622
Compressive Strength (psi)	50 +/- 5%^	ASTM D 1621
Tensile Strength (psi)	60 – 80	ASTM D 1623
Shear Strength (psi)	40 – 60	ASTM C 273
Closed Cell Content (%)	>90	ASTM D 6226
Aged k-factor (Btu in/ft <sup>2</sup> hr °F)	0.158 (R=6.3/in)***	ASTM C 518
Permeance (perms)	1.97	ASTM E 96
Permeability (perm inch)	2.58	
<b>Dimensional Stability (% Volume Change)</b>		
Dry Age 28 Days (158°F)	0.69%	ASTM D 2126
Freeze Age 14 Days (-20°F)	0.25%	ASTM D 2126

\* - These physical property values are typical for this material as applied at our development facility under controlled conditions or statistical measurement. SPF performance and actual physical properties will vary with differences in application (i.e. ambient conditions, process equipment and settings, material throughput, etc). As a result, these published properties should be used as guidelines solely for the purpose of evaluation. Physical property specifications should be determined from actual production material.

The above data was collected from samples prepared using the following equipment configuration:

- ▶ Gusmer® H-20/35 proportioner set at 1:1 volume ratio with 50 ft of heated delivery hose
- ▶ GX-7 spray-gun configured with a #1 mix module and #70 Pattern Control Disc (PCD)
- ▶ Process temperature settings: Isocyanate 130°F; Resin 130°F; Hose 130°F
- ▶ Process pressure: 1000 psig minimum during dispensation

Every job site and set of ambient /substrate conditions are different; therefore, one set of process settings may not work for every situation. It is the responsibility of the applicator to evaluate the on-site conditions then choose the appropriate SPF reactivity and process settings.

\*\*\*The chart shows the R-value of this insulation. "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation will depend upon the climate, the type and size of your facility and the fuel use patterns. If you buy too much insulation it will cost you more than what you will save on fuel. To achieve proper R-values, it is essential that this insulation be installed properly.

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### **SAFETY & PPE:**

In addition to reading and understanding the MSDS, all contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems. Personnel should review the following documents published by Spray Polyurethane Foam Alliance (SPFA):

- ▶ AY-104 Spray Polyurethane Foam Systems for New and Remedial Roofing
- ▶ AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings.

The following document is available from the Center for the Polyurethanes Industry (CPI):  
Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration's Respiratory Protection Program Standard 29 C.F.R. §1910.134

As with all SPF systems, improper application techniques such as: excessive thickness of SPF, spraying into or under rising SPF and off-ratio material. 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.

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.

AIR INTAKE UNITS SHOULD BE SHUT DOWN AND VENTS SEALED DURING POLYURETHANE SPRAY APPLICATIONS.

SPF insulation is combustible. High-intensity heat sources such as welding or cutting torches must not be used in contact with or in close proximity to SF 4228 or any polyurethane foam.

### **SHELF LIFE & STORAGE CONDITIONS:**

SF 4228 has a shelf life of approximately three months from the date of manufacture when stored in original, unopened containers at 50-80°F. As with all industrial chemicals this material should be stored in a covered, secure location. Storage temperatures above the recommended range will shorten shelf life. Storage temperatures above the recommended range may also result in elevated headspace pressure within packages.

### **LIMITED WARRANTY INFORMATION - PLEASE READ CAREFULLY:**

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are only intended for sale to industrial and commercial customers. Customer assumes full responsibility for quality control, testing and determination of suitability of products for its intended application or use. We warrant that our products will meet our written liquid component specifications. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability of fitness for a particular purpose. Our total liability and customers' exclusive remedy for all proven claims is replacement of nonconforming product and in no event shall we be liable for any other damages, including without limitation special, incidental, punitive, or consequential damages.

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## *Technical Product Data*

**MAINTENANCE:**

The life of the roof may be extended by regularly scheduled maintenance. A roof should typically be inspected at least twice a year. The roof immediately needs to be inspected following severe weather and extraordinary maintenance on roof-mounted equipment.

# Technical Product Data

*Specification Writers: A copy of the Application Specification for this product may be obtained from Progressive Materials Customer Service.*

*The information reported herein are based upon information reasonably available to Progressive Materials, LLC at the time publication, and are presented in good faith but are not to be construed as warranties or guarantees, expressed or implied.*

**ADDITIONAL TESTING APPROVALS & CERTIFICATIONS:**

- ▶ UL 723 Listing with UL
- ▶ UL 263 / CAN/ULC-S101 P-Design Assemblies Classified for Fire Resistance
- ▶ UL 1256
- ▶ CAN/ULC-S102 Listing with UL/ULC
- ▶ ASTM C1029 Type III
- ▶ FM APPROVALS Class 1 FM 4470 / FM 4880
  - Concrete decks, Recover decks and Steel decks
- ▶ UL 790 Listings for Roof Assemblies - Exterior Fire
  - Non-Combustible Decks
    - Class A up to Unlimited thickness of SPF
    - Up to Unlimited Incline available
    - Silicone, Acrylic and Urethane coating options
    - Granules at 35 lbs per 100 sq. ft. depending on configuration
  - Combustible Decks
    - Class B at 1 inch (min) SPF thickness
    - Silicone, Acrylic and Urethane coating options
    - Up to 1:12 Incline available
    - Granules at 35 lbs per 100 sq. ft. depending on configuration

Contact Progressive Materials for more detailed specifications on our roofing systems and to find a certified contractor near you.



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