

COMFORT FOAM 178 Series

INSULATION SYSTEM

PRODUCT DESCRIPTION:

COMFORT FOAM 178 is a closed-cell polyurethane system utilizing an EPA approved, zero ozone-depleting blowing agent. It is designed for use in commercial and residential construction applications. COMFORT FOAM 178 is compatible with most common construction materials. The benefits of **COMFORT FOAM 178** include:

- Superior insulation performance
- Control moisture infiltration
- Controls air infiltration
- Ease of application
- Non-fibrous

APPROVALS AND CREDENTIALS:

ASTM E-84* Listed at SGS US Testing Co., Inc.

Class I	
SPF Thickness	4.0 inches
Flame Spread Index	25
Smoke Development Index	350

NFPA 286

8 inch wall
12 inch ceiling
with 15 min. thermal barrier
Tested at Intertek ETL Semko
Test Report Number: 3116019-002c

Attic & Crawl Space

Tested at Intertek ETL Semko
Test Method SwRI 99-02
Test Report Number: 3116311-002c

* - This numerical flame spread rating does not reflect hazards presented by this or any other material under actual fire conditions. Polyurethane foam systems should not be left exposed and must be protected by a minimum 15-minute thermal barrier or other code-compliant material as allowed by applicable building code(s) and Code Officials. Building Codes provide guidelines representing minimum requirements. Further information is available at www.iccsafe.org. Consult all Authorities having jurisdiction over an area for additional or specific requirements prior to beginning a project.

TYPICAL PROPERTIES**:

<u>PROPERTY</u>	<u>VALUE</u>	<u>TEST METHOD</u>
Liquid Resin – As Supplied		
Specific Gravity @ 70°F	1.180	ASTM D 1638
Viscosity @ 70°F (cps)	440	Brookfield
As Cured		
Iso:Resin Mix Ratio (vol:vol)	1:1	
Density, core (pcf @ 2" lift)	Nominal 2.0	ASTM D 1622
Compressive Strength (psi)	22	ASTM D 1621
Tensile Strength (psi)	28	ASTM D 1623 Type C
Closed Cell Content (%)	>90	ASTM D 6226
Initial k-factor (Btu in/ft ² hr °F)	0.165 (R=6.1/in)***	ASTM C 518
Permeance (perms)	1.82	ASTM E 96
Permeability (perm inch)	1.82 @ 1" SPF	ASTM E 96
	0.91 @ 2" SPF	
	0.61 @ 3" SPF	
	0.46 @ 4" SPF	
Air Permeance (L/s/m ² @ 75 Pa)	0.000025	ASTM E 2178-01
Air Leakage (L/s/m ² @ 75 Pa)	0.000025	ASTM E 283-99
Dimensional Stability (%Volume Change)		
Dry Age 28 Days (158°F)	+8 to +12%	ASTM D 2126
Freeze Age 14 Days (-20°F)	+0.07 to -0.21%	ASTM D 2126

** - These physical property values are typical for this material as applied at our development facility under controlled conditions. 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
- Gusmer® GX-7 spray-gun configured with a #1 mix module and #70 PCD and/or GAP spray-gun configured with a #1 mix chamber
- Process temperature settings: Isocyanate 130°F; Resin 130°F; Hose 130°F
- Process pressure: 1000 psig minimum while spraying

COMFORT FOAM 178 has shown acceptable on-site performance with temperature settings in the range of 110°F - 130°F for Isocyanate, Resin and Hose. 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 and then determine the appropriate SPF reactivity and process settings.

***The data 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 house, and the fuel use patterns and family size. 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.

Helping Make
Buildings Better™

BASF
The Chemical Company

BASF Polyurethane
Foam Enterprises LLC

GENERAL INFORMATION:

COMFORT FOAM 178 is a spray polyurethane foam (SPF) system intended for installation by qualified contractors trained in the processing and application of SPF 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. BASF Polyurethane Foam Enterprises LLC technical service personnel should be consulted in all cases where application conditions are questionable.

CAUTIONS AND RECOMMENDATIONS:

COMFORT FOAM 178 is designed for an application rate of ½ inch minimum to 2 inches maximum. Once installed material has cooled it is possible to add additional applications in order to increase the overall installed thickness of SPF. Typical installations are limited to a total thickness of 4 inches. This application procedure is in compliance with the Spray Polyurethane Foam Alliance (SPFA).

COMFORT FOAM 178 is **NOT** designed for use as an **EXTERIOR** roofing system. BASF Polyurethane Foam Enterprises LLC offers a separate line of products for exterior roofing applications. For more information please contact your sales representative.

Cold-storage structures such as coolers and freezers demand special design considerations with regard to thermal insulation and moisture-vapor drive. **COMFORT FOAM 178** should **NOT** be installed in these types of constructions unless the structure was designed by a design professional for specific use as cold storage.

COMFORT FOAM 178 is designed for installation in most standard construction configurations using common materials such as wood and wood products, metal and concrete. **COMFORT FOAM 178** has performed successfully when sprayed onto wood substrates down to 30°F. For other substrates, please consult your BASF Polyurethane Foam Enterprises LLC sales or technical service representative for specific recommendations.

Foam plastic materials installed in walls or ceilings may present a fire hazard unless protected by an approved, fire-resistant thermal barrier with a finish rating of not less than 15 minutes as required by building codes. Rim joists and / or sill plates, in accordance with the IRC, IBC and approval by the local Code Authority, may not require additional protection. Foam plastic must also be protected against ignition by code-approved materials in attics and crawl spaces. See relevant Building Codes and www.iccsafe.org for more information.

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

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 document published by Spray Polyurethane Foam Alliance (SPFA):

AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings

and the following document available from the Center for the Polyurethanes Industries (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, 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.

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. High-intensity heat sources such as welding or cutting torches must not be used in contact with or in close proximity to COMFORT FOAM 178 or any polyurethane foam.

SHELF LIFE AND STORAGE CONDITIONS:

COMFORT FOAM 178 Series 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 and never in direct sunlight. 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 or 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.