



# Natural-Therm™ 3.0 PCF

## Spray Polyurethane Foam Insulation System

### PRODUCT OVERVIEW

Natural-Therm™ 3.0 PCF Series Spray Foam Insulation is the B-component of a two-component polyurethane foam insulation system. It has a nominal 3.0 PCF spray in place density. Natural-Therm™ was developed using an EPA approved Zero ODP blowing agent. This product provides superior energy efficiency and air infiltration control. This product is an approved roofing material.

### PRODUCT USE

Natural-Therm™ 3.0 PCF is designed as a high performance building envelope insulation system for both industrial and commercial construction.

### Thermal Barrier:

IRC and IBC codes require that SPF be separated from the interior of a building by a thermal barrier, which is applied over SPF to slow thermal rise, and delay its involvement in a fire. A building code definition of an approved thermal barrier is one that is equal in fire resistance to 1/2 inch gypsum board. See Natural-Therm™ building science application guide for more information.

### PHYSICAL PROPERTIES

Method	Description	Value
ASTM D1622	Density (core)	3.0 lb/ft <sup>3</sup> 43 Kg/m <sup>3</sup>
ASTM C518	Thermal Resistance at 90 days (R-Value per inch)	
	73.4°F (23°C)	6.66 ft <sup>2</sup> .h.°F/BTU.in
	32°F (0°C) / 77°F (25°C)	6.62 ft <sup>2</sup> .h.°F/BTU.in
	50°F (10°C) / 95°F (35°C)	6.64 ft <sup>2</sup> .h.°F/BTU.in
ASTM D1621	Compressive Strength (parallel)	44 psi
ASTM D2126	Dimensional Stability (% Volume Change) 7 days	
	158°F (70°C), ambient R.H.	- 2.25
	158°F (70°C), 97% R.H.	- 3.6
	-22°F (-30°C), ambient RH	- 2.3
ASTM D-2842	Water Absorption (% volume)(96 hrs. immersion)	0.08
ASTM C 273	Shear Strength (lb/in <sup>2</sup> )	40
ASTM D 1623	Tensile Strength Parallel to rise (lb/in <sup>2</sup> )	60
ASTM E 96	Water Vapor Transmission	1.56
ASTM D-2856	Closed Cell Content (% by volume closed cell)	> 90
ASTM E84	Surface Burning Characteristics, 4 inches thick	
	Flame spread index	25
	Smoke developed	450

### FIRST AID:

**Inhalation:** Remove to fresh air and seek medical attention. See MSDS for more details.

**Eye and Skin Contact:** Wearing eye protection is required. Polyurethane foam vapors can enter the body through the lungs, eyes and skin. It is important to protect the lungs, eyes and skin from overspray and organic vapors emitted by the foam while it is being applied.

**Ingestion:** If liquid is swallowed seek medical attention immediately.

### STORAGE:

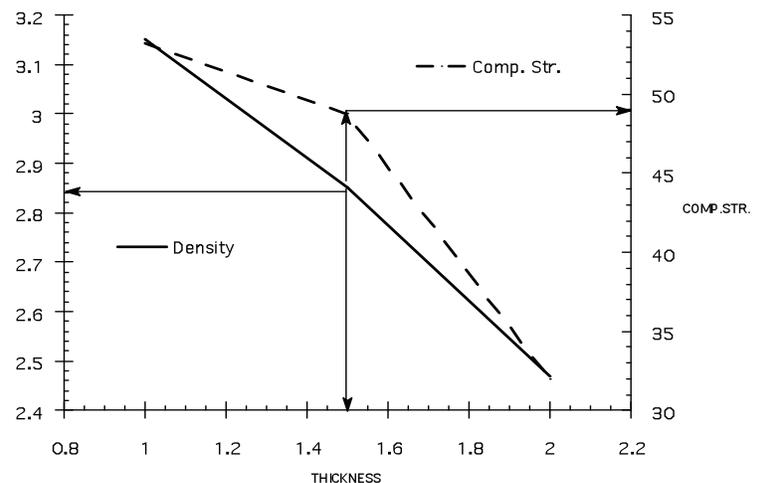
The material is recommended to be stored between 50° F and 80° F. Keep material from freezing. This material has a three-month shelf life under normal storage temperatures.

### PERSONAL PROTECTION:

All users must wear approved chemical protection equipment. OSHA approved respirators are required. Please see the training manual for more information.

### PASS THICKNESS GUIDELINES

Natural Therm™ 3.0 pcf Series with PASSLINE



### PRODUCT SELECTION GUIDE

Natural-Therm™ 3.0 Series includes three 3.0 pcf density systems designed for processing on substrates of 45°F to 140°F. The following table should act as a selection guideline.

Sprayed In-Place Density	Temperature Range	Product Recommendation
3.00 pcf	95°-140°F	Natural-Therm™ B 3.0 pcf AS
3.00 pcf	65°-110°F	Natural-Therm™ B 3.0 pcf S
3.00 pcf	45°-70°F	Natural-Therm™ B 3.0 pcf WS

For single pass applications the recommended temperature range applies to the substrate temperature; for multiple-pass applications the temperature recommendations apply to the ambient temperature. Substrate composition will influence product selection. Substrate composition will influence product selection. Consult your Natural-Polymers representative to determine which product best satisfies your application requirements.

All polyurethane foam burns in varying degrees which in turn liberates toxic gasses and should be evaluated in its final form for compliance to existing standards in your industry. The information presented herein is based on our own research and that of others and is believed to be correct, however, no warranty is expressed or implied. No statement herein extends any license, either expressed or implied, in connection with any patents issued or pending which may be the property of Natural Polymers or others. The manufacturer shall not be liable (regardless of fault) to the vendor's employees, or anyone for any direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishings of such information.

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### RECOMMENDED APPLICATION INSTRUCTIONS

#### Substrate Preparation

To ensure best results, the surface to be sprayed must be free of all grease, oil, moisture, loose particles, or other foreign matter which might adversely affect the adhesion of the foam to the substrate. To assure proper adhesion to existing foam substrates, coatings which hinder bonding, such as silicone, must be completely removed prior to spraying. Insulation or sheathing with aluminum foil facers is not considered to be a suitable substrate. Metal substrates should be cleaned by means of commercial sandblasting, wire brush, or chemical treatment to remove scale or rust. Special attention is to be given to galvanized steel, aluminum and other non-ferrous metal surfaces. Such surfaces require an acid wash, a thorough water rinse, and then complete drying prior to priming. Primer coats are recommended for all iron, steel, aluminum, and galvanized steel substrates. A vapor barrier will be necessary when it is believed that vapor transmission through the substrate will cause an accumulation of moisture. Only qualified, experienced spray applicators should determine the suitability of a substrate for spraying.

#### Climatic Considerations

When choosing the specific reactivity of NATURAL-THERM™ 3.0 Series for a particular application, climatic conditions must be anticipated. To ensure proper foam performance, all substrates to be sprayed must be dry (i.e., the application should not take place in high moisture conditions such as rain, fog, mist, frost, or high humidity, e.g., >85%RH). Under high wind conditions (>12 mph), problems with texture, cure, and overspray will likely be experienced. All foams polyurethane foams should be protected from direct prolonged contact from sunlight. To protect exposed foam surfaces from prolonged ultraviolet degradation and moisture attack, the application of a coating is required immediately after the foam has cured. A clean, dry foam surface is required for adequate coating adhesion.

#### Processing Recommendations

The processing equipment to be used must maintain, at all times, equal processing ratios (50/50) by volume. The spray gun must provide thorough and intensive mixing of the two components at all processing throughputs. Optimum component pressures and temperatures will vary from machine to machine. Typically, higher mixing pressures will provide improved yield, cell structure and physical properties. A 2-to-1-transfer pump in the B-Component drum is recommended in colder weather conditions (<60°F) where increased component viscosity may limit the supply of material in the metering pump. During spray applications of polyurethane foam systems, whether outdoors, indoors, or in a spray booth, positive-pressure air-supplied masks or hoods are mandatory. The following equipment set-ups are recommended for processing NATURAL-THERM™ 3.0 Series spray foam systems. Natural-Therm™ 3.0 PCF has been evaluated by SGS USTC 1127557-3 in accordance to the ASTM tests listed in this sheet.

### EQUIPMENT SET-UP:

	Graco E-20	Graco H-25	Graco H-40
<b>Machine Set-Up*</b>			
Hydraulic Pressure, psi	N/A	800	900
Spray Pressure, psi			
Static, A/B	1,100-1,400	1,200-1,400	1,200-1,400
Dynamic, A/B	900-1,200	1,000-1,200	1,200-1,300
Preheater Temperature, °F			
A Component	130-150	120-130	115-130
B Component	130-150	120-130	115-130
Hose temperature, °F	120-130	120-130	115-125

#### Graco Fusion Air Purge Gun Set-Up\*

Round Mixing Chamber	AR-5252	AR-5252	AR-6060
lbs per Minnie	20 lbs/min	25-lbs/min	35 lbs/min

\*Consult your equipment supplier for any additional set-up information. NATURAL-THERM™ 3.0 Series should be sprayed in uniform passes of 1/2" to 1" thickness. NATURAL-THERM™ 3.0 Series has a six-month shelf life when stored in containers at 60°F-75°F.



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