CARLISLE SYNTEC SYSTEMS

FleeceBACK®
SPF-245 Insulation

Overview

Carlisle's SPF-245 Insulation is an HFC-blown, rigid polyurethane spray foam system with superior insulation efficiency and an excellent strength-to-weight ratio. The blowing agent used in this product (245fa or 1, 1, 1, 3, 3 pentafluoropropane) has zero ozone depletion potential (ODP) and is not considered a volatile organic compound (VOC) in the U.S. These properties, combined with outstanding fire testing results, make this product an ideal choice for use in roofing applications.

Intended Uses

SPF-245 is not designed for use as an interior insulation system. It is used in conjunction with Flexible FAST™ Adhesive and FleeceBACK® membranes to provide high-performance roofing systems with maximum thermal efficiency. Carlisle's SPF-245 Insulation can be applied to wood, structural concrete, cementious wood fiber, gypsum, metal and most existing weathered asphalt roofing surfaces. SPF-245 is available in either 2.5- or 3-lb density. The 3-lb density is required for 30-year warranties.

Features and Benefits

- Monolithic, self-flashing
- Redundant waterproofing characteristics
- Eliminates thermal bridging
- High compressive strength

Installation

1. The surface to which adhesive is applied shall be dry and free of fins, protrusions, sharp edges, loose and foreign materials, oil, and grease.
2. Wind, ambient temperatures, building materials and sunlight affect surface temperatures. Apply Carlisle SPF-245 Insulation when the substrate temperature is below 180°F (82°C.)
3. Water (rain, fog, condensation, etc.) will react chemically with the mixed components, adversely affecting the foam formation and properties. Consequently, the substrate must be dry at the time of application. Wind velocities greater than 15 miles per hour may result in loss of exotherm, thus affecting foam density and other properties.
4. Most high-pressure plural component (1500 psi or more) equipment works best when the components are heated to 130°F (54°C) as measured by inserting a hose thermometer under the hose insulation near the gun. The optimum temperature may vary with the type of equipment used and the particular application.
5. Care must be exercised to be certain that the component A is only allowed to come in contact with the isocyanate pots and pumps, and component B in contact with the resin pots and pumps.
6. Dry nitrogen or air should blanket both components, as moisture will compromise both components.
7. Work should proceed so that a convenient area is built-up to the desired thickness as quickly as possible before moving on to another area. **Caution:** DO NOT apply excessive thickness. Normal pass thickness to be applied is ¾" (19 mm) thick minimum to 2" (50 mm) thick maximum to obtain physical properties below. Allow 15 minutes between lifts to allow the freshly installed material to cool before installing additional passes of material.
8. Spraying should be done by professional and trained foam mechanics.
9. Equipment should be cleaned in accordance with equipment manufacturer's recommendations. Please see appropriate SDS and label for usage and precautions.

For a listing of drum reconditioners/recyclers in your area contact the Reusable Industrial Packaging Association at (301) 577-3786 or www.reusablepackaging.org.

Review Carlisle specifications and details for complete installation information.

Available Formulations & Relevant Temperature Ranges

Formulation Name	Ambient Temperature Range
Summer AZ (High Temperature)	100°–120°F (38°–49°C)
Summer	85°–100°F (29°–49°C)
Spring/Fall (Midrange)	65°–90°F (18°–32°C)
Winter	50°–70°F (10°–21°C)

Precautions

- **REVIEW THE APPLICABLE MATERIAL SAFETY DATA SHEET FOR COMPLETE SAFETY INFORMATION PRIOR TO USE.**
- The foam produced is an organic material. It must be considered combustible and may constitute a fire hazard. The foam must not be left exposed or unprotected. Shield from heat and sparks. Cut large masses of excess SPF into smaller sections and allow to cool prior to disposal.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with pre-filters and solvent-resistant cartridges or supplied airline respirators while spraying. Proper safety training is essential for all persons involved in the installation process. If vapor is inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.

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- In addition to reading and understanding the SDS, 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):
  a. AY-104 Spray Polyurethane Foam Systems for New and Remedial Roofing.
  b. 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):
  c. Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration's Respiratory Protection Program Standard 29 C.F.R. §1910.134.
- Avoid contact with eyes. Safety glasses or goggles are required.
- If Carlisle's SPF-245 Insulation components are splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact physician immediately.
- Avoid contact with skin. Wear long-sleeved shirts and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil. NOTE: Permeation-resistant gloves that meet ANSI/ISEA 105-2005 are required when handling Part A.
- All materials should be stored in their original containers away from heat and moisture, especially after the containers have been opened. Both components may contain volatile ingredients and should be kept tightly sealed and stored indoors at a temperature between 50°F and 80°F (10°C and 26.5°C). Jobsite storage temperatures in excess of 80°F (26.5°C) may result in elevated head space pressure in sealed drums, and affect product shelf life. Should the components be stored at temperatures lower than 70°F (21°C), restore to room temperature prior to use. Do not allow Carlisle's SPF-245 Insulation to freeze [storage below 0°F (-18°C) for 3 days or more.]
- Use spray booths and/or windscreens when spraying in windy conditions to reduce the potential for overspray.
- Precautions must be taken to prevent Carlisle's SPF-245 Insulation vapors or overspray from entering buildings during application. All air intake vents on roofs must be closed during application of Carlisle's SPF-245 Insulation.
- KEEP OUT OF REACH OF CHILDREN

Coverage Rate

SPF-245 is supplied in 55-gallon "drum sets" (A 55-gallon drum of Part A and a 55-gallon drum of Part B.) Coverage rate per "Drum Set" is as follows:

	2.5 lb	3 lb
1"-thick pass	2,900	2,700
1½"-thick pass	2,150	2,000

Measurements in square feet/drum set

Typical Properties and Characteristics

Base	SPF-245 Part A Polymeric Isocyanate	SPF-245 Part B Polyols, Surfactants & Catalysts	
		2.5 lb	3 lb
Mixing ratios by volume	1:1 Part A to Part B		
Viscosity (cps@70°C)	500–800	500–800	500–800
Avg. net weight	10.25 lbs/gal	9.85 lbs/gal	9.85 lbs/gal
Packaging	55-gal drum (208 L)	55-gal drum (208 L)	55-gal drum (208 L)
Shelf life (stored at 50°–80°F)	9 months	3 months	3 months

Physical Properties (Finished Product)

Property	Test	Typical Results*	Typical Results*
Compressive Strength (psi) Type III per ASTM C-1029	ASTM D-1621	45	55
Density (pcf in place)	ASTM D-1622	2.4–2.6	2.9–3.2
Tensile Strength (psi)	ASTM D-1623	60–80	60–80
Shear Strength (psi)	ASTM C-273	40–60	40–60
Closed Cell Content	ASTM D-6226	>90%	>90%
K-factor (BTU inch/ft² hr °F)	ASTM C-518	0.158 (R=6.3/in)	0.158 (R=6.3/in)
Water Vapor Transmission - Permeability	ASTM E-96	0.9 Perms at 1 inch	0.9 Perms at 1 inch
Water Absorption	ASTM C-1029 ASTM D-2842	0.3 vol%	0.6 vol%
Dimensional Stability-Volume Change (%) 158°F/95% RH/168 hrs 158°F/95% RH/28 days 158°F/dry heat/28 days -20°F/14 days	ASTM D-2126	 2.21% 5.00% 0.69% 0.25%	 2.21% 5.00% 0.69% 0.25%

These physical property results are typical for this foam system applied at the manufacturer's facility under controlled conditions. The foam and resultant physical properties can vary with changes in the application parameter; i.e., temperatures, foam thickness, processing equipment, mix head variations, through-put, etc. As a result, these published properties are useful for evaluation guidelines. Physical property specifications should be determined from actual production-processed foam.

LEED® Information

	Part A	Part B
Pre-consumer Recycled Content	0%	0%
Post-consumer Recycled Content	0%	0%
Manufacturing Location	Geismar, LA	Houston, TX
VOC Content	0 g/L	0 g/L
Solar Reflectance Index	N/A	N/A