TECHNICAL DATA SHEET

Material Specification Criteria | Project Submittal Data

foamsulate™

FOAMSULATE™ HFO

CLOSED CELL FOAM

Foamsulate HFO is a two-component, next generation HFO blown medium density spray applied polyurethane foam. The HFO technology allows Foamsulate HFO to be produced with a Global Warming Potential (GWP) of less than One and with an Ozone Depletion Potential (ODP) of Zero. To produce Foamsulate HFO requires the use of an “A” component (ISO) and a blended “B” component (RESIN) which contains ZERO ozone depleting blowing agents, catalysts, polyols and fire retarding materials. Foamsulate HFO is an insulation system designed for use in commercial and residential applications. Use in lieu of more traditional forms of insulating materials such as fiberglass, cellulose or other loose fill products. Typical area’s where spray polyurethane foam is applied are exterior walls, vented attics, unvented attic assemblies, between floors, foundations, crawl spaces, hvac ducts, fluid tanks, and cold storage units.

TYPICAL PHYSICAL PROPERTIES:

PROPERTY	FOAMSULATE 50	TEST
R-VALUE	6.9 @ 1" 21 @ 3"	ASTM C-518
CORE DENSITY	2.0 LB / Cubic Foot	ASTM D-1622
CLOSED CELL CONTENT	> 90%	ASTM D-2856
SOUND TRANSMISSION COEFFICIENT	41	ASTM E-90-85/E 413
WATER ABSORPTION	< 2% by volume	ASTM D-2842
WATER VAPOR TRANSMISSION - PERMEANCE	0.8 Perms at 1" 0.23 Perms at 3.5"	ASTM E-96
AIR IMPERMEABLE	< 0.02 (L/s-m2) @ 1"	ASTM E-2178
TENSILE STRENGTH (PSI)	60 psi	ASTM D-1623
DIMENSIONAL STABILITY	< 9%	ASTM D-2126
COMPRESSIVE STRENGTH (PSI)	47 psi	ASTM D-1621

BUILDING CODE CERTIFICATIONS / FIRE TEST DATA		
EVALUATION SERVICE REPORT	IAPMO	UES-650
BUILDING TYPES	Approved	I, II, III, IV, V-B: Nonstructural Insulating Material
FLAME SPREAD	ASTM E84	Class I < 25
SMOKE DEVELOPMENT	ASTM E84	Class I < 450
ASTM C 1029	Spray Applied Polyurethane Thermal Insulation	Meets or exceeds Type II
NFPA 285	Pass	Compliant For Use In Building Types: I, II, III, IV, V
NFPA 286	Pass: Can be used without a Code prescribed 15-minute thermal barrier when covered with one of the approved intumescent coatings as shown on page 2.	
NFPA 286 AC377 APPENDIX X	Pass: Complies with the applicable requirements of ICC-ES AC377 Appendix X for use in attics and crawlspaces without a prescriptive ignition barrier.	
UL 1715	Pass: Can be used without a Code prescribed 15-minute thermal barrier when included as a component in tested alternative thermal barrier assemblies. See THERMAL BARRIER on page 2.	
UL LISTING	FWFX.R38039	Exterior Wall System Component
UL LISTING	FWFO.EWS0013 & EWS0029	Exterior Wall System

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THERMAL BARRIER: Current International Building Code (IBC) and International Residential Code (IRC) require that spray polyurethane foam be separated from the building interior by a Code prescribed 15-minute thermal barrier or a Code-approved alternative. Gypsum board at a minimum thickness of ½" is a Code-prescribed 15-minute thermal barrier. The following products when installed per manufacturer specifications are alternative thermal barrier assemblies containing Foamsulate HFO:

APPROVED INTUMESCENT COATINGS:

DC315™ manufactured by: International Fireproof Technology, Inc	Application Rates: 14 Wet Mils - 9 Dry Mils
Fireshell BMS TC manufactured by: TPR Corporation	Application Rates: 26 Wet Mils - 12 Dry Mils
Plus ThB manufactured by: No Burn Inc.	Application Rates: 14 Wet Mils – 9 Dry Mils

IGNITION BARRIER: Foamsulate HFO meets the requirements of ICC-ES AC377 and Appendix X for use in attics and crawlspaces without the use of a prescriptive ignition barrier or Intumescent Coating under the following conditions:

a	Entry is only to service utilities in the attic or crawl space and no storage is permitted.
b	Attic or crawl space areas cannot be connected.
c	Air from the attic or crawlspace cannot be circulated to other parts of the building.
d	In accordance with IBC Section 1203.3 or IRC Section R408.1, under floor (crawlspace) ventilation is provided as applicable.
e	In accordance with IBC 1203.2 or IRC Section R806, attic ventilation is provided as applicable.
f	In accordance with 2012 and 2009 IMC (International Mechanical Code®) Section 701, or 2006 IMC Sections 701 and 703, combustion air is provided.
g	The foam plastic insulation is limited to the maximum thickness and density tested.
h	The installed coverage rate of coatings, if part of the insulation system shall be equal or greater than that tested.

GENERAL PROPERTIES: Foamsulate HFO is a 2.0 pcf density closed cell insulating material. Foamsulate HFO is designed for use where insulation systems require superior air barrier characteristics along with the ability to minimize moisture infiltration. Foamsulate HFO has a 6.9 per inch R-value rating while providing structural enhancement due to its semi-rigid nature when cured. When properly installed by a professional application company Foamsulate HFO quickly expands to fill the cracks, crevices, gaps and voids that exist in every structure. In addition, Foamsulate HFO will conform to the curves, irregular surfaces and spaces to form a superior thermal envelope around your entire structure.

EQUIPMENT AND COMPONENT RATIOS: The mix ratio is 1 to 1 by volume. The pre-heater temperatures should be set between 105°F – 140°F and able to maintain +/- 5°F.

VAPOR RETARDER: When installed at a minimum thickness of 1" Foamsulate HFO is considered a vapor retarder. Consult local building code officials for specific requirements. Climate zone tables are available in current IBC and IRC publications.

APPLICATION GUIDELINES: Polyurethane foam systems should be processed through commercially available spray equipment designed for that purpose by a qualified professional applicator. Consult the current Carlisle Spray Foam Insulation application guidelines for Foamsulate HFO prior to installation. It is the responsibility of the professional applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to a spray polyurethane foam application.

MATERIAL HANDLING: Due to the reactive nature of these components respiratory protection is mandatory. The vapors and liquid aerosols present during application and for a short period thereafter must be considered – and appropriate protective measures taken – to minimize potential risks from overexposure through inhalation, skin, or eye contact. These protective measures include adequate ventilation, safety training for installers and other workers, use of appropriate personal protective equipment, and a medical surveillance program. It is imperative that the applicator read and become familiar with all available information on proper use and handling of spray polyurethane foam. Additional information is available at www.carlislesfi.com or by contacting the Technical Services department of Carlisle Spray Foam Insulation.

PROPER STORAGE OF RAW MATERIALS: Shelf life is six (6) months from date of manufacture when stored indoors, in the original unopened containers and between the temperatures of 50° – 80°F.

TECHNICAL ASSISTANCE: For additional assistance please contact the Technical Services department of Carlisle Spray Foam Insulation at (844) 922-2355.

DISCLAIMER: To the best of our knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. User must contact Carlisle Spray Foam Insulation to verify correctness before specifying or ordering. We guarantee our products to conform to the quality control standards established by Carlisle Spray Foam Insulation. We assume no responsibility for coverage, performance or injuries resulting from use. Liability, if any, is limited to replacement of the product. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARLISLE SPRAY FOAM INSULATION EXPRESSED OR IMPLIED; STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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