

Technical Product Data

THERMAL INSULATION AND AIR BARRIER CCRR-1108

Specification Section: 07 21 19 Foamed-in-Place Insulation,
07 27 00 Air Barriers

PRODUCT DESCRIPTION

Icynene ProSeal™ HFO is a closed cell spray applied foam, which was developed using an EPA approved 4th generation blowing agent and when installed following application guidelines adheres tenaciously to framing members and substrates. It is a thermal insulation and air barrier material suitable in buildings in accordance with the IRC and the IBC including Type I, II, III, IV and V construction. It is a low VOC product allowing for 1 hour job site re-entry and 2 hour job site re-occupancy at applicable ventilation rates. ProSeal™ HFO Closed-Cell spray foam closed cell spray foam can be applied with an initial pass thickness of 5.5 inches. It provides exceptional performance in minimizing heat transfer, moisture gain, air leakage, and improving racking strength.

Recommended Product Applications:

- Wall Cavities
- Exterior Walls as Continuous Insulation
- Unvented Attics and Vented Attics
- Ceilings
- Floors
- Piping
- Unvented Crawl Spaces
- Vented Crawl Spaces
- Foundations
- Concrete Slabs
- Ducts
- Cold Storage Areas

PROPERTIES OF CURED FOAM

Characteristic	Test Method	Value
Core Density	ASTM D 1622	2.0 lbs./ft ³
Color		Cream
Aged Thermal Resistance: at 1"	ASTM C 518	R-6.2
at 2" (Calculated)		R-13
at 3" (Calculated)		R-20.4
at 3½"		R-24
Air Permeance	ASTM E 2178	< 0.02 L/s.m ² at 1"
Air Barrier Assembly at 1"	ASTM E 2357	0.001 L/s.m ² at 75 Pa 0.047 L/s.m ² at 300 Pa
Water Vapor Permeance @ 74°F	ASTM E 96	1.4 perms @ 1" .95 perms @ 1.4"
Water Resistive Barrier	ICC-ES AC71	1"
Water Absorption	ASTM D 2842	2.36%
Dimensional Stability 28 days at 160°F, 100%RH	ASTM D 2126	≤4%
Compressive Strength	ASTM D 1621	28.1 psi
Closed Cell Content (% Volume)	ASTM D 6226	> 90%

BURN CHARACTERISTICS

Surface Burning at 4 inches:	ASTM E 84	Class 1
Flame Spread Index		15
Smoke Development		350
Commercial Fire Resistance	NFPA 285	Assembly Passed*
Commercial Fire Resistance	ASTM E 119	1 & 2 Hour Ratings*
DC 315, No-Burn Plus ThB Thermal Barrier	NFPA 286	> 15 minutes
Wall & Ceiling Application Maximum Thickness	ACC377	No Limit
Attic & Crawl Space Walls & Roof Uncoated Thickness	ACC377 Appendix X	Walls - 8" Roof - 12"

*consult Icynene-Lapolla Engineering Department for details.

- Icynene ProSeal™ HFO must be covered with ½" of gypsum board, DC-315 intumescent paint coating @ 14 wet mils , No-Burn Plus ThB intumescent paint coating @ 14 wet mils or approved thermal barrier.
- Icynene ProSeal™ HFO is subject to all applicable National/ State and County building codes regarding fire prevention. Requirements for Thermal Barrier and Ignition Barrier coverings must be met as per the applicable building code as required by the authority having jurisdiction.
- Icynene ProSeal™ HFO per ACC377 Appendix X test reporting is approved for use in limited access attics and crawl spaces without an ignition barrier or an intumescent paint coating.

AIR BARRIER/ MECHANICAL VENTILATION

- Icynene ProSeal™ HFO fills any shaped cavity, and adheres to most construction materials, creating assemblies with very low air permeance.
- Additional interior or exterior air infiltration protection is subject to applicable codes.
- All buildings insulated and air sealed with Icynene ProSeal™ HFO must be designed to include adequate mechanical ventilation/outdoor air supply for optimum IAQ (Indoor Air Quality).
- For mechanical ventilation see ASHRAE Standard 62 – Ventilation for Acceptable Indoor Air Quality or any other acceptable good engineering practice.

WATER VAPOR PERMEANCE & ABSORPTION

- Icynene ProSeal™ HFO is a Class II vapor retarder, at 1.4" thickness, which reduces the amount of moisture that can diffuse through the insulation.
- Icynene ProSeal™ HFO meets FEMA criteria for resisting water absorption.
- It is resistant to moisture allowing it to be used below the base flooding elevation in flood prone areas.

ENVIRONMENTAL AND HEALTH

- Icynene ProSeal™ uses an environmentally friendly HFO blowing agent and therefore has zero ozone-depletion potential.
- Icynene ProSeal™ HFO has the lowest Global Warming Potential (GWP of 1) value for foam insulation products.
- Icynene ProSeal™ HFO is PBDE-free.
- 1 hour re-entry and 2 hour re-occupancy possible provided rate of air exchange (ventilation) during spraying and for noted time period thereafter equals or exceeds 18 air changes per hour.
- UL Greenguard Gold certified

INSTALLATION

- Icynene ProSeal™ HFO is installed by a network of Licensed Dealers, trained in its installation.
- Maximum thickness per pass is 5.5 inches for the first pass. Wait 30 minutes for the first layer to cool before applying a second layer/lift of 5.5 inches over the initial layer/lift.
- **THIS FOAM MUST NOT BE APPLIED IN EXCESS OF 5.5 INCHES PER PASS AS NOTED. THE FOAM SHOULD BE ALLOWED TO COOL FOR 30 MINUTES OR UNTIL THE SURFACE TEMPERATURE HAS RETURNED TO AMBIENT BEFORE ADDITIONAL APPLICATIONS OF FOAM ARE ATTEMPTED. FOAM APPLIED IN EXCESS OF 5.5 INCHES OR WITHOUT ALLOWING FOR COOLING MAY RESULT IN, BUT IS NOT LIMITED TO EXCESS HEAT BUILD-UP AND RESULT IN FIRE OR THE GENERATION OF OFFENSIVE ODORS THAT MAY NOT DISSIPATE WITH TIME.**
- **LIMITATIONS:** Wood, concrete and gypsum board sheathing substrates may receive 5.5 inches per application. Substrate thinner than 22 gauge and gypsum board attic floor substrates should be applied at 1 inch for the first pass. Low voltage wiring should not be encased in a single 5.5 inch pass.
- This product should not be installed within 3" of heat emitting devices, (or as specified by Code) where the temperature is in excess of 180°F, in accordance with applicable codes.
- It can be installed at ambient temperatures between 14°F and 35°F (winter blend), 35°F and 70°F (regular blend) and 65°F and 120°F (summer blend).
- **Heat settings, hose and preheaters**
 - Summer 105°-120° F (115° F average starting point)
 - Regular 105°-125° F (118° F average starting point)
 - Winter 65°-85° F (115° F average starting point)
- **Pressures**
 - 4242 mix chamber 1000-1250 psi (recommended)
 - 5252 mix chamber 1000-1150 psi (recommended)

- When spraying passes at or over 2.5" it is optimal to spray it like open cell (side to side) to obtain the highest possible yields so adjust the pressures accordingly
- Surface preparation is generally not necessary.
- Within seconds, the foaming process is complete.

HANDLING AND SAFETY

For information on Health and Safety, refer to the Spray Polyurethane Foam Alliance Health and Safety guidance documents at www.spraypolyurethane.com.

AVAILABILITY

Contact Icynene Inc. at 800-758-7325 or visit our website at www.icynene.com.

WARRANTY

WHEN INSTALLED PROPERLY IN ACCORDANCE WITH INSTRUCTIONS, THE COMPANY WARRANTS THAT THE PROPERTIES OF THE PRODUCT MEET PRODUCT SPECIFICATIONS AS OUTLINED IN THIS TECHNICAL DATA SHEET. SAVE AND EXCEPT ANY EXCLUSIONS REFERENCED IN THE WARRANTY.

TECHNICAL

Icynene Licensed Dealers and Icynene Inc. provide support on both technical and regulatory issues. Architectural specifications in CSI 3-Part format and design details are available at our website at www.icynene.com.

REGULATORY

- Icynene ProSeal™ HFO has been tested as per the requirements of the International Code Council Evaluation Service's AC377 Acceptance Criteria (April 2016).
- Meets ASTM C1029 Type II classification.
- For regulatory issues concerning Icynene ProSeal™ HFO contact Icynene at 800-758-7325.

RELATED REFERENCES

All physical properties were determined through testing by accredited third party agencies. Icynene Inc. reserves the right to change specifications in its effort of continuous improvement. Please confirm that technical data literature is current.

PACKAGING AND STORAGE

- Packaging - 55 US gallon, closed top steel drums
- Component 'A' - 520 lb. per drum. Base Seal® MDI
- Component 'B' - 480 lb. per drum. Icynene ProSeal™ HFO - Resin
- Icynene ProSeal™ HFO (Component A and Component B) ideally should be stored between 65°F (18°C) and 85°F (30°C).
- Component A should be protected from freezing.
- Shelf life is 6 months.

Health & Safety Certified Sprayer

Icynene spray foam insulation products have an excellent health and safety record spanning more than 425,000 projects over more than 25 years. Nonetheless, safe handling practices during and immediately following installation are required to eliminate the possibility of health effects from exposure to isocyanates. Asthma, other lung problems, and irritation of the nose and throat can result from inhalation of isocyanates. Direct contact with the skin and eyes can result in irritation. Different individuals will react differently to the same exposures; some will be more sensitive than others. Severe asthma attacks have been reported in some sensitized workers exposed repeatedly to isocyanates while not wearing proper protective equipment. Some reports indicate a reaction and sensitization can occur following a single, sustained occupational exposure to isocyanates without proper protective equipment above the OSHA permissible exposure limit. But sensitization might not occur immediately in some individuals. Consistent use of personal proper protective equipment to prevent exposure during spraying and within the 1 hour** -period after spraying is completed is critical to eliminating the health hazard. Once sensitization has occurred, a worker might not be able work safely with spray foam insulation again.

Sprayers, sprayer helpers, and anyone else present during spraying or within 1 hour** after spraying is complete: You must ventilate at levels prescribed on this page and must wear proper Personal Protective Equipment (PPE) at all times during spray, including full-body-coverage, chemical-protective clothing and a NIOSH-certified respirator with fresh air supply. While spraying and for 1 hour** after spraying is completed, no one must be allowed within 50 feet of the sprayed foam without wearing this type of PPE at all times. Adequate active, negative pressure ventilation (exhaust fans) of the job site must be in place during spray and for 2 hours** after spray is complete to allow for re-occupancy.

For installations of low VOC products Icynene Classic Ultra, Icynene ProSeal, Icynene ProSeal LE and Icynene ProSeal HFO in the United States only, re-entry of the job site is permitted after 1 hour** and re-occupancy of the job site is permitted after 2 hours** provided that ventilation rates are followed as recommended on this page.

Independent studies and third party toxicologist verification indicates that when the prescribed ventilation rates and periods are followed, Icynene spray foam insulation is safely cured.

WARNING

WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT AT ALL TIMES ON PREMISES DURING SPRAYING & FOR AT LEAST 1 HOUR* AFTER SPRAYING IS COMPLETE.

*FOR APPLICATIONS OF LOW VOC ICYNENE CLASSIC ULTRA, ICYNENE PROSEAL, ICYNENE PROSEAL LE AND ICYNENE PROSEAL HFO ONLY WITH VENTILATION AS SPECIFIED ON THIS PAGE.



RE-ENTRY AND RE-OCCUPANCY PERIODS

Times based upon ventilating during and after a spray application.

Ventilation Rate (Air Changes per Hour)	Re-entry period for sprayers, helpers, informed trade workers and contractors	Re-occupancy period for all others
At 0.3 ACH	24 hours	24 hours
At 1.0 ACH	12 hours*	24 hours
At 10.0 ACH	4 hours*	24 hours
At 10.0 ACH <small>For Icynene Classic Ultra Select</small>	1 hour*	24 hours
At 10.0 ACH <small>For Icynene Classic Ultra</small>	1 hour**	2 hours**
At 18.0 ACH <small>For Icynene ProSeal HFO</small>	1 hour**	2 hours**
At 40.0 ACH	1 hour**	2 hours**

* Twelve (12) and four (4) hour re-entry for trades applies to all Icynene products sold in the United States.

** One (1) hour re-entry and two (2) hour re-occupancy applies only to low VOC products:

- Icynene Classic Ultra at 10 ACH
- Icynene ProSeal HFO at 18 ACH
- Icynene ProSeal / Icynene ProSeal LE at 40 ACH

Icynene Inc. 6747 Campobello Road
Mississauga, Ontario L5N 2L7 Canada

Ph: 1.800.758.7325 • ICYNENE.COM

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ICYNENE **LAPOLLA**™

Health & Safety Homeowners

COMMITTED TO THE RESPONSIBLE USE OF SPRAY
FOAM CHEMISTRY FOR OVER 25 YEARS.

Icynene spray foam insulation products have an excellent health and safety record spanning more than 425,000 projects over more than 25 years. Nonetheless, safe handling practices during and immediately following installation are required to eliminate the possibility of health effects from exposure to isocyanates. Asthma, other lung problems, and irritation of the nose and throat can result from inhalation of isocyanates. Direct contact with the skin and eyes can result in irritation. Different individuals will react differently to the same exposures; some will be more sensitive than others.

Everyone (other than Icynene-certified spray technicians) must vacate the job site, remaining completely out of the building or at least 50 feet away, while the spray is applied and for at least 2 hours* after spraying is completed to allow active ventilation of the job site and to ensure the foam chemicals are completely cured. No exceptions.

Independent studies and third party toxicologist verification indicates that when the prescribed ventilation rates and periods are followed, Icynene spray foam insulation is safely cured.

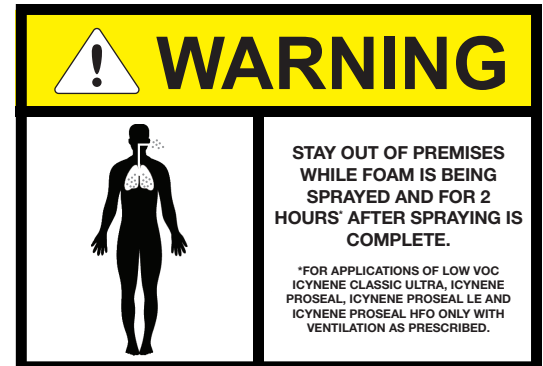
*** For installations of low VOC products Icynene ProSeal and Icynene ProSeal LE in the United States only, re-occupancy of the job site is permitted after 2 hours provided that the rate of air exchange during spraying and for 2 hours thereafter equals or exceeds 40 Air Changes per Hour (ACH). For applications of low VOC Icynene ProSeal HFO in the United States only, re-occupancy is permitted after 2 hours provided rate of air exchange during and for 2 hours thereafter equals or exceeds 18 Air Changes per Hour. For applications of low VOC Icynene Classic Ultra in the United States only, re-occupancy is permitted after 2 hours provided rate of air exchange during and for 2 hours thereafter equals or exceeds 10 Air Changes per Hour.**



Icynene Inc. 6747 Campobello Road
Mississauga, Ontario L5N 2L7 Canada

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CLIENT ACKNOWLEDGEMENT

NAME:

BUILDING ADDRESS:

CITY:

STATE / PROVINCE:

ZIP / POSTAL CODE:

I have read and understand the information on this document. I understand that I must vacate the premises during spraying and for at least 2 hours* after spraying has been completed.

SIGNATURE:

DATE:

Email completed form to hsagreements@icynene.com or fax 1-888-340-2552.

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