

### THERMAL INSULATION AND AIR BARRIER ICC-ES ESR-3500

Specification Sections: 07 21 19 Foamed-in-Place Insulation, 07 27 00 Spray Polyurethane Foam Air Barriers

#### PRODUCT DESCRIPTION

Icynene ProSeal X™ is a closed cell spray applied polyurethane foam insulation and air barrier material that has exceptional yield resulting in outstanding job site productivity. It can have an initial pass thickness of 2 inches and is suitable for buildings in accordance with the IRC and IBC including Type I, II, III, IV and V construction. It delivers high R-value and Class II water vapor permeance required in certain climate zones. The product is for use as a thermal insulation and air barrier in:

- exterior walls as continuous insulation
- wall cavities
- floor assemblies
- ceiling assemblies
- attics (vented and unvented)
- crawl spaces (vented and unvented)
- foundation walls on the interior or exterior
- under floor slabs

#### PROPERTIES OF CURED FOAM

Characteristic	Test Method	Value
Core Density	ASTM D 1622	1.5 lb/ft³
Color		Cream
Aged Thermal Resistance: at 1"	ASTM C 518	R-6.7
at 2" (Calculated)		R-14
at 3" (Calculated)		R-20
at 3½"		R-24
Air Permeance	ASTM E 2178	< 0.0009 L/s.m² at 1"
Air Barrier Assembly at 1"	ASTM E 2357	0.0106 L/s.m² at 75 Pa 0.0734 L/s.m² at 300 Pa
Water Vapor Permeance	ASTM E 96	0.77 perm at 2.25" (1 perm at 1.75" calculated)
Water Resistive Barrier	ICC-ES AC71	1"
Dimensional Stability at 7 days (% Volume)	ASTM D 2126	3% at 158°F and 97% RH
Compressive Strength	ASTM D 1621	29 psi (197 kPa)
Tensile Strength	ASTM D 1623	37 psi (254 kPa)
Closed Cell Content (% Volume)	ASTM D 6226	98%
Fungus Testing	ASTM C 1338	No Growth

#### BURN CHARACTERISTICS

Surface Burning at 4 inches:	ASTM E 84	Class A
Flame Spread Index		20
Smoke Development		400
Wall & Ceiling Application Maximum Thickness	AC377	Walls- none Ceiling- none
Attic & Crawl Space Walls & Roof Uncoated Thickness	AC377 Appendix X	Walls - 6" Roof - 6"

- Icynene ProSeal X™ 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 X™ per AC377 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 X™ 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 H5™ 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 X™ is a Class II vapor retarder, at 1.75" thickness, which reduces the amount of moisture that can diffuse through the insulation.
- Icynene ProSeal X™ 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.

## INSTALLATION

- Icynene ProSeal X™ is installed by a network of Licensed Dealers, trained in its installation.
- Icynene ProSeal X™ is limited to a maximum of 2 inches per pass.
- For wall cavities and roof deck applications, installers must use a picture frame technique with a 2 inch maximum thickness along the studs.
- Installers then must use a vertical spray technique for the first 2 inch pass and each subsequent pass after that.
- Applicators must wait a minimum of 10 minutes between the 1st and 2nd pass and 20 minutes between any additional passes up to 2 inches per pass.
- Any application over sheet rock baffles, gypsum board, baffles or a thin gauge metal, a 1 inch initial pass is required. A 10 minute wait time and then additional passes can then be applied.
- If spraying over Polyethylene baffles the baffles need to be secured with an adequate amount of staples to ensure baffles do not pull from substrate.
- 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 in hot, humid or freezing conditions. Minimum substrate temperature for application is 23°F (-5°C).
- 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](http://www.spraypolyurethane.com).

## AVAILABILITY

Contact Icynene Inc. at 800-758-7325 or visit our website at [www.Icynene.com](http://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](http://www.Icynene.com).

## REGULATORY

- ESR-3500 has been issued by the ICC-ES for Icynene ProSeal X™.
- Icynene ProSeal X™ 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 X™ 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 X™ -Resin
- Icynene ProSeal X™ (Component A and Component B) ideally should be stored between 60°F (15°C) and 85°F (30°C).
- Component A should be protected from freezing.
- Shelf life is 6 months.



PRODUCT CERTIFIED  
FOR LOW CHEMICAL  
EMISSIONS



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# 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

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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.

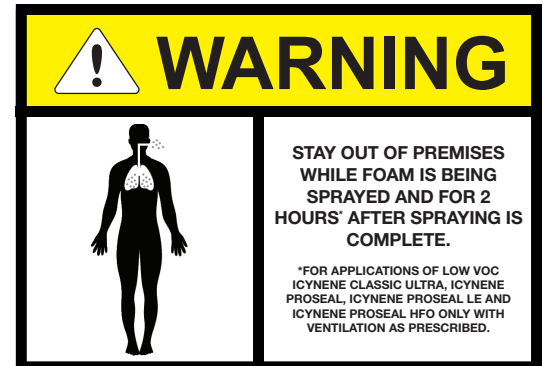
**\* For installations of low VOC products Icynene ProSeal and Icynene ProSeal LE in the United States only, re-occupancy of the job site is permitted after 2 hours provided that the rate of air exchange during spraying and for 2 hours thereafter equals or exceeds 40 Air Changes per Hour (ACH). For applications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



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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](mailto:hsagreements@icynene.com) or fax 1-888-340-2552.

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