

## Technical Product Data

### THERMAL INSULATION AND AIR BARRIER CCMC 13684-R

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

#### PRODUCT DESCRIPTION

Classic Plus™ (LD-C-70) is a spray-in-place low density, open celled, flexible, 100% water-blown polyurethane foam insulation manufactured by Icynene Inc. Icynene Classic Plus™ is a nominal 11 kg/m<sup>3</sup> (0.7 lbs/ft<sup>3</sup>) density, free rise material. The product is for use as a thermal insulation and air barrier in:

- wall cavities
- floors separating living spaces from a garage
- cathedral ceiling assemblies
- overhanging floor assemblies
- interior below-grade foundation walls

#### PROPERTIES OF CURED FOAM

Characteristic	Test Method	Value Metric (Imperial)
Core Density	ASTM D 1622	11.2 kg/m <sup>3</sup> (0.7 lb/ft <sup>2</sup> )
Colour		Yellow
Thermal Resistance at 25.4 mm	ASTM C 518	0.72 (m <sup>2</sup> •K)/W (R-4.1 at 1")
Air Permeance at 50.8 mm	ASTM E 2178	0.019 L/s.m <sup>2</sup>
Water Vapor Permeance at 25 mm	ASTM E 96	1626 ng/Pa.s.m <sup>2</sup> (28 perm at 1")
Dimensional Stability at 28 days (Volume Change)	ASTM D 2126	-0.2% at -29°C
		-3.5% at 80°C
		-0.8% at 70°C and 97% RH
Surface Flame Spread Rating	CAN/ULC-127	415
Smoke Developed Classification	CAN/ULC-102	110
Time to Occupancy <sup>1</sup>	CAN/ULC-S774	24 Hours
Fungus Testing	ASTM C 1338	No growth

<sup>1</sup> The volatile organic compound (VOC) emissions under consideration were measured with an assumed room ventilation rate of 0.3 air changes per hour as per the NBC 2010 requirements for new construction.

#### ACOUSTICAL PROPERTIES

Performance in a 38 x 89 mm (2 x 4") wood stud wall:

STC Sound Transmission Class - 37

Hertz Frequency	125	250	500	1000	2000	4000
ASTM E90	19	30	31	42	38	46

NRC Noise Reduction Coeff. - .70

Hertz Frequency	125	250	500	1000	2000	4000
ASTM C423	.11	.43	.89	.72	.71	.67

#### AIR BARRIER/ MECHANICAL VENTILATION

- Icynene Classic Plus™ 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 Classic Plus™ must be designed to include adequate mechanical ventilation/outdoor air supply.
- For mechanical ventilation see CAN/CSA F-326 - Residential Mechanical Ventilation, HRAI (Heating, Refrigeration and Air Conditioning Institute of Canada) Digest, ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers) guidelines, or any other acceptable good engineering practice.

#### WATER ABSORPTION PROPERTIES

- Water can be forced into the foam under pressure because it is open celled.
- Water will drain by gravity, given favourable drying potential, and upon drying all chemical and physical properties are fully restored.

#### BURN CHARACTERISTICS

- Icynene Classic Plus™ is a combustible product and is therefore, consumed by flame, but will not sustain flame upon removal of the flame source. It leaves a charred foam residue. It will not melt or drip.
- Icynene Classic Plus™ is subject to all applicable National and/or Provincial building codes regarding fire prevention. Requirements for Thermal Barrier coverings must be met as per the applicable building code having jurisdiction.

## ELECTRICAL WIRING

- Icynene Classic Plus™ has been evaluated with energized 14/3 and 12/2 residential wiring (max. 50°C/122°F).
- It is chemically compatible with typical electrical wiring coverings.
- For any insulation of older knob and tube wiring, please reference local electrical code.

## CORROSION

- Icynene Classic Plus™ did not cause corrosion when evaluated in contact with steel at 48°C (120°F) and 85% relative humidity conditions.

## PLASTIC PIPING

- Icynene Classic Plus™ is compatible in direct contact with the following piping systems, as per Paschal Engineering Study:
  - CPVC
  - ABS
  - PVC
  - PP-R

## ENVIRONMENTAL/HEALTH/SAFETY

- Icynene Classic Plus™ is 100% water-blown and therefore contains no ozone-depleting blowing agents.
- The reaction used to create Icynene Classic Plus™ generates carbon dioxide to expand the foam. Carbon dioxide has a very low Global Warming Potential (GWP of 1).
- Icynene Classic Plus™ is PBDE-free.
- It has been thoroughly evaluated for in-situ emissions by industry and government experts.
- Proper handling and use is required to avoid exposure to reactive chemicals in their unreacted state.
- Not intended for exterior use. Not to be installed within 76 mm (3") of heat emitting devices or where the temperature is in excess of 82°C (180°F), as per ASTM C411 or in accordance with applicable codes.

## INSTALLATION

- Icynene Classic Plus™ is installed by a network of Licensed Dealers, trained in its installation.
- Installation is generally independent of environmental conditions.
- It can be installed in hot, humid or freezing conditions.
- Surface preparation is generally not necessary.
- Within seconds, the foaming process is complete.

## 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 CSC 3-Part format and design details are available at our website at [www.icynene.com](http://www.icynene.com).

## REGULATORY

Icynene Classic Plus™ has been independently evaluated by the Canadian Construction Materials Centre (CCMC). For regulatory issues concerning Icynene Classic Plus™ in Canada, please see CCMC Evaluation Report 13684 -R, The NBCC (National Building Code of Canada) or applicable Provincial Building Codes.

## 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' – 550 lb. per drum. Base Seal® MDI
- Component 'B' – 500 lb. per drum. ICYNENE Classic Plus™ – Resin
- Icynene Classic Plus™ (Component A) and (Component B) ideally should be stored between 15°C (60°F) and 29°C (85°F).
- Component A should be protected from freezing.
- Shelf life is 12 months



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# 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 350,000 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 24 hours after spraying is completed to allow active ventilation of the job site and to ensure the foam chemicals are completely cured. No exceptions.

**For installations of low VOC products (Icynene Classic Max and Icynene ProSeal) 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).**

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.



# Health & Safety Certified Sprayer

Icynene spray foam insulation products have an excellent health and safety record spanning more than 350,000 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 24 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 24 hours after spraying is complete: You 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 24 hours 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 24 hours after spray is complete.

**EXCEPTION:** For installations of low VOC products Icynene Classic Max and Icynene ProSeal in the United States ONLY, re-entry 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.



## 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 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 Max and Icynene ProSeal).

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