

PRODUCT SPECIFICATION

1. PRODUCT NAME

ICYNENE LD-R-50™

ICYNENE LD-R-50™ is a trademark for renewable based, light density, open celled, flexible, all water blown polyurethane foam insulation manufactured by Icynene Inc. ICYNENE LD-R-50™ is a 0.5 lbs/ft³ density, free rise material.

2. MANUFACTURER

ICYNENE LD-R-50™ is made on-site from liquid components manufactured by Icynene Inc. Installation and on-site manufacturing are supplied by independent Icynene Licensed Dealers.

3. PRODUCT DESCRIPTION

Icynene’s next generation of high performance products, ICYNENE LD-R-50™, is a renewable-based, 0.5 lb., 100% water-blown foam insulation and air barrier material. ICYNENE LD-R-50™ exceeds ICC-SAVE and USDA BioPreferredSM standards for a renewable-based product.

Using high-yield castor oil, a safe, natural ingredient also found in personal care products such as lip balm, ICYNENE LD-R-50™ reduces the need for petroleum-based polyol. ICYNENE LD-R-50™ is an environmentally preferable product that contains no ozone-depleting substances, is PBDE-free, and is 100% water-blown.

It insulates and air-seals in one step for maximum energy conservation while minimizing the environmental impact during manufacturing and construction. Significantly reducing air leakage means ICYNENE LD-R-50™ contributes to a healthier, quieter and more comfortable indoor environment, while reducing energy consumption and related greenhouse gas emissions by as much as 50%.

ICYNENE LD-R-50™ is an effective “breathing” [Vapor Permeable] air barrier that can move with the building to maintain the air barrier characteristic against energy-robbing air leakage for the life of the building. Convective air movement inside cavities is virtually

eliminated, providing more uniform temperatures throughout the building.

The result is superior quality construction, with higher comfort levels and lower heating and/or cooling costs. Energy savings will vary depending on building design, location, etc.

ICYNENE LD-R-50™ is applied by spraying liquid components onto an open wall, crawl space, ceiling surface or cathedral ceiling. There it expands 100:1 in seconds to provide a flexible foam blanket of millions of tiny air cells, filling building cavities, cracks and crevices in the process. It adheres to virtually all surfaces, sealing out air infiltration. Excess material is easily trimmed off, leaving a surface ready for drywall or other finish.

4. TECHNICAL DATA

(Based on Core Samples)

Renewable Content

ASTM D6866 > 7%

Thermal Performance

Thermal resistance R/in. (RSI/25mm)
ASTM C518: R3.7 hr. ft² °F/BTU
RSI 0.65 m² °C/W

Average insulation contribution in a full fill stud wall:
2” x 4” = R13 2” x 6” = R20

ICYNENE LD-R-50™ provides more effective performance than the equivalent R-value of air permeable insulation materials. ICYNENE LD-R-50™ is not subject to loss of R-value due to aging, settling, convection or air infiltration; nor will it be prone to traditional moisture intrusion via convective air flow. A FACT SHEET with R-value data is available upon request.

Air Permeance/Air Barrier /Air Seal

ICYNENE LD-R-50™ 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.

Air permeability of core foam:
ASTM E283 data
<0.02 L/S-m² @75 Pa for 3”

ASTM E2178 data
0.007 L/s.m² @ 75 Pa. for 5.5”

In all buildings, adequate mechanical ventilation/air supply should be provided for optimum IAQ [Indoor Air Quality]. See ASHRAE Guidelines #62 – Ventilation for Acceptable Indoor Air Quality.

Water Vapor Permeance

ICYNENE LD-R-50™ is water vapor permeable and allows moisture to diffuse through the insulation and dissipate from the building envelope.

Water vapor transmission properties:
ASTM E96 data:
17 perms @ 2”
1005 ng (Pa.s.m²) @ 50mm

In those situations that warrant a vapor barrier, the use of low vapor permeable paint on the interior drywall is adequate.

Water Absorption Properties

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

Burn Characteristics

ICYNENE LD-R-50™ is a combustible product and is therefore, consumed by flame, but will not sustain flame upon removal of the flame source. It leaves a charcoal residue. It will not melt or drip. ICYNENE LD-R-50™ is subject to all applicable National/State and County building codes regarding fire prevention and requirements for Thermal Barrier coverings must be met as per the applicable building code having jurisdiction.

<u>U.S.A. Specifications</u>	
Surface Burning Characteristics as per ASTM E84*:	
Flame Spread	<25
Smoke Development	<450
Fuel Contribution	Zero
Oxygen Index ASTM D2863	23%
[Will not sustain flame]	
*flame spread rating not intended to reflect hazards under actual fire conditions.	

Bacterial or Fungal Growth and Food Value

Independent testing conducted as per ASTM C1338 showed that ICYNENE LD-R-50™ is not a source of food for mold; and as an air barrier, ICYNENE LD-R-50™ reduces the airborne introduction of moisture, food, and mold spores into the building envelope.

Environmental / Health / Safety

ICYNENE LD-R-50™ is 100% water-blown and therefore contains no ozone-depleting blowing agents. It is also PBDE-free. It has been thoroughly evaluated for in-situ emissions by industry and government experts. VOC emissions are below 1/100th of the safe concentration level (TLV) within hours following the application ICYNENE LD-R-50™. A 12 hr. time to occupancy period is established for ICYNENE LD-R-50™ and recommended for highly sensitive people.

ICYNENE LD-R-50™ is CHPS E.Q. 2.2/Section 01350 Compliant and listed as such in the Collaborative for High Performance Schools (CHPS) Low Emitting Materials (LEM) Table. Under LEED guidelines, products that are CHPS E.Q. 2.2/Section 01350 Compliant are considered Environmentally Preferable Products.

Not intended for exterior use. Not to be installed within 3" of heat emitting devices, where the temperature is in excess of 200°F, or in accordance with applicable codes.

5. INSTALLATIONS

ICYNENE LD-R-50™ is installed by a network of Licensed Dealers, trained in the installation of ICYNENE LD-R-50™. Installation is generally independent of

environmental conditions. ICYNENE LD-R-50™ can be installed in hot, humid or freezing conditions. Surface preparation is generally not necessary. Within seconds, the foaming process is complete.

6. AVAILABILITY

Check regional Yellow Pages™ or contact Icynene Inc. at 800-758-7325 or our website at www.Icynene.com for a local Icynene Licensed Dealer.

7. WARRANTY

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

8. TECHNICAL

Icynene Licensed Dealers and Icynene Inc. provide support on both technical and regulatory issues. Architectural specifications in CSI 3-Part format are available upon request.

9. REGULATORY

ICYNENE LD-R-50™ has been tested as per the requirements of The International Code Council — Evaluation Service's AC377. ESR 0165 (IAPMO report) has been issued. This data has also been submitted for the preparation of an ICC ES Report.

10. 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.

11. PACKAGING AND STORAGE

- Packaging - 55 U.S. gallon open top steel drums
- Component 'A' - 550 lb. per drum
- Base Seal® - Polyisocyanate MDI
- Component 'B' - 500 lb. per drum
- ICYNENE LD-R-50™ - Resin

Storage

Component A, Base Seal®, Polymeric Isocyanate and ICYNENE LD-R-50™ Resin (Component B) ideally should be stored between 15°C (60°F) and 32°C (90°F).

Component A should be protected from freezing.

Component B can be frozen but must be protected from overheating (49°C /120°F) and prolonged storage above 38°C /100°F. Component B separates during storage and should be mixed thoroughly prior to use.

12. INSTALLATION SPECIFICATIONS

Must be installed by Icynene Licensed Dealers.

Refer to the Icynene Installer's Manual for expanded information.



ICYNENE™

HEALTHIER, QUIETER, MORE ENERGY EFFICIENT*

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