

**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 Icnene Inc. ICYNENE LD-R-50™ spray formula is a 8 kg/m<sup>3</sup> (0.5 lbs/ft<sup>3</sup>) density, free rise, open celled material.

**2. MANUFACTURER**

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

**3. PRODUCT DESCRIPTION**

Icnene'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 BioPreferred SM standards for a renewable-based product.

Using high-yield castor oil material, 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 is HFC-and 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™ performance is less installation sensitive than factory manufactured insulation materials.

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 purpose, design, location, etc.

ICYNENE LD-R-50™ is applied by spraying the foam into an open wall, crawl space, ceiling surface or cathedral ceiling. There it expands 100:1 in a matter of seconds to provide a flexible foam blanket of millions of tiny air cells, filling building cavities and sealing cracks and crevices in the process.

**4. TECHNICAL DATA**

(Based on Core Samples)

**Renewable Content**

ASTM D6866 > 7%

**Thermal Performance**

Thermal resistance R/in @ 75°F.  
ASTM C518: R3.7 hr. ft<sup>2</sup> °F/BTU

**Heat Flow Reduction:**

Through 1" =	75%
Through 3.5" =	93%
Through 5.5" =	95%
Through 10" =	98%

ICYNENE LD-R-50™'s air-sealing capability provides improved performance over traditional air permeable insulations at equivalent R-values. ICYNENE LD-R-50™ is not subject to loss of R-value due to aging, windy conditions, settling, convection or air infiltration; nor will it be prone to traditional moisture intrusion via convective air flow.

**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-m<sup>2</sup> @75 Pa for 3"

In all buildings, adequate mechanical ventilation/air supply should be provided for optimum IAQ (Indoor Air Quality). See ASHRAE Guidelines.

**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. It will not trap moisture in materials to which it is applied.

Water vapor transmission properties:  
ASTM E96: 17 perms @ 2"  
1005 ng (Pa.s.m<sup>2</sup>)

**Water Absorption Properties**

ICYNENE LD-R-50™ is hydrophobic and therefore does not absorb or wick water. 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 CI338 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™ contains no HFCs or PBDEs. 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 of ICYNENE LD-R-50™.

ICYNENE LD-R-50™ is CHPS E.Q. 2.2/Section O1350 Compliant and listed as such on the California High Performance Schools (CHPS) Low Emitting Materials (LEM) Table. Under LEED guidelines, products that are CHPS E.Q. 2.2/Section O1350 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, as per ASTM C411, 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](http://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.

**9. REGULATORY**

ICYNENE LD-R-50™ has been tested as per the requirements of The International Code Council – Evaluation Service’s AC377 and the data has been submitted for the preparation of an ESR report.

**10. RELATED REFERENCES**

All physical properties were determined through testing by accredited third part 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 - 208 L (55 U.S. gallon) open top steel drums  
Component ‘A’ - 250kg (550 lb.) per drum  
Renew-Base Seal - Polyisocyanate MDI  
Component ‘B’ - 226 kg (500 lb.) per drum  
ICYNENE LD-R-50™ - Resin

**Storage**

Renew-Base Seal (Component A) and ICYNENE LD-R-50™ Resin (Component B) ideally should be stored between 15°C (60°F) and 32°C (90°F). Renew-Base Seal (Component A) should be protected from freezing and ICYNENE LD-R-50™ resin (Component B) will

separate during storage and must be mixed thoroughly prior to use.

**12. INSTALLATION SPECIFICATIONS**

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



**ICYNENE™**  
HEALTHIER, QUIETER, MORE ENERGY EFFICIENT\*

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