

# ICYNENE LD-R-50™

Renewable-based Spray Foam Insulation - Responsibly formulated for Superior Performance



Icynene's next generation of high performance product, 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 the renewable content specification set by the USDA BioPreferred<sub>SM</sub> program and ICC-SAVE. Using high-yield castor oil material, ICYNENE LD-R-50™ reduces the need for petroleum-based polyol. Castor oil is a natural ingredient that is safe enough for use in personal care products such as lip balm.

ICYNENE LD-R-50™ is an environmentally preferable product that is 100% water-blown and free from HFCs and PBDEs. 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%.



Renewable Resource



Air Barrier



Moisture Management

## Key Application Areas

ICYNENE LD-R-50™ is sprayed in place by Icynene Licensed Dealers and expands 100 times its initial volume to insulate and air-seal open wall cavities and ceilings, crawlspaces, rim joists, attics, and the underside of roofs.

ICYNENE LD-R-50™ delivers a consistent air-seal for a Healthier, Quieter, More Energy Efficient® environment in both wood and metal framed structures. The product addresses critical considerations for steel construction including simplicity of installation, thermal performance, condensation, and maintenance costs.

### CASTOR OIL: Environmental Overview \*

- Castor oil is 100% naturally filtered, no chemical additives required
- Castor crops are non-irrigated (relying only on natural rainfall), saving scarce water supplies
- Castor beans do not require pesticides or fungicides
- Production process has low energy dependence, consisting of simply de-husking and pressing. Harvesting is manual.
- The castor oil used has a yield (by weight) of ~40% vs. ~17% yield with soya oil
- Castor beans do not compete with food crops, as castor plants can be grown on marginal lands, which are not competitive with food production lands.
- Castor is a rapidly renewable material, as per USGBC definition, requiring a 10-year or less re-growth timeframe

\* Source: Supplier

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**Product Listing:** Intertek (Warnock Hersey)

## Technical Data:

HFCs, VOCs <sup>1</sup> .....	none
PBDEs.....	none
Renewable Content (ASTM D 6866).....	>7%
Environmentally Preferable Product:	
CHPS E.Q. 2.2/Section 01350 Compliant (CA/DHS/EHLB/R-174)	passed <sup>2</sup> for use in schools
Flame Spread <sup>3</sup> (ASTM E 84).....	<25
Smoke Development (ASTM E 84).....	<450
Fuel Contribution (ASTM E 84).....	zero
Oxygen Index (ASTM D 2863).....	23 (will not sustain a flame)
Density (ASTM D 1622).....	0.5 lb/ ft <sup>3</sup>
Thermal Performance (ASTM C 518).....	R 3.7 per inch
Heat flow reduction through 1".....	75%
Heat flow reduction through 3.5".....	93%
Heat flow reduction through 5.5".....	95%
Heat flow reduction through 10".....	98%
Air Permeance (ASTM E 283).....	<0.02 L/s-m <sup>2</sup> @75 Pa for 3.0"
Vapor Permeance (ASTM E 96).....	17 perms or 1005 ng/(Pa.s.m <sup>2</sup> ) @ 2"
Unvented Attic/ Crawlspace	
Fire Test (SWRI 99-02).....	15 inches in roof deck bare, 6 inches in walls with ignition barrier
Food source for mold (ASTM C 1338).....	none

## Code Compliance:

International Code Council: IRC 2003 & 2006  
IECC 2003 & 2006  
2004 Supplement to the International Codes  
IBC 2003 & 2006

## Helping Projects Gain Green Certification

LEED for Homes and Commercial Buildings – ICYNENE LD-R-50™ qualifies for credits in the following categories: Energy & Atmosphere, Innovation & Design, Materials & Resources, and Indoor Environmental Quality.

NAHB National Green Building Program – ICYNENE LD-R-50™ contributes up to 231 points in the following categories: Resource Efficiency, Energy Efficiency, Indoor Environmental Quality, and Additional Practices.



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

TOLL FREE: 800.758.7325  
WEBSITE: WWW.ICYNENE.COM  
E-MAIL: INQUIRY@ICYNENE.COM

<sup>1</sup> after 30 days

<sup>2</sup> based on ASTM D 5116 "Standard Guide for Small Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products and incorporates the chamber testing portion of California Specification 01350 for schools and residential buildings

<sup>3</sup> flame spread rating is not intended to reflect hazards under actual fire conditions