

Bulletin Number: M15-009

Date: April 29, 2015

Distribution: External

Johns Manville participates in PIMA's Life Cycle Assessment on Polyiso Products Resulting in an Environmental Product Declaration

In response to requests from the architectural community and various NGO's, the Polyisocyanurate Insulation Manufacturers Association (PIMA) completed a Life Cycle Assessment (LCA) for both polyiso roof and wall insulation in 2012. Using the ISO 14,000 series of standards, the LCA measures the environmental impact of the polyiso throughout its life cycle (cradle-to-grave). In accordance with the Product Category Rule for Building Insulation, the life cycle boundaries are from raw-material acquisition to product disposal after a 60-year building service life.



The LCA model represents the weighted-average production for all of PIMA's members, including JM. The assessment was conducted by submitting individual plant data to a certified, third-party verifier, NSF International. Environmental impacts were modelled to include potential measures of global-warming, ozone-depletion, eutrophication, acidification, and smog-creation. The final result from this work is an Environmental Product Declaration (EPD) that is an internationally-recognized, standardized tool that declares the environmental impacts of polyiso.

Specifiers now have a standardized model to compare insulation materials such as polyiso, EPS, XPS, and mineral wool and their relative impacts on the environment. Given the high R-value per inch of thickness, polyiso performs well in an environmental impact comparison when compared to other insulation material. Polyiso requires less material and shows less of an environmental impact in order to deliver the specified above-deck R-value as shown in the attached comparison chart.

For those design professionals concerned with LEED® credits, polyiso now yields more credits because of this new Polyiso EPD. The U.S. Green Building Council (USGBC®) LEED v4 Green Building Rating System offers more credits for products that have EPD's. Under Credit MRC-2 (Building Product Disclosure and Optimization), products with an industry-wide or generic EPD are eligible for one-half LEED credit.

[PIMA Press Release](#)

[Polyiso Roof Insulation EPD](#)

For more information, please contact our Specifier Services or Guaranteed Services Teams at 800-922-5922 option 3.

MJ Cusick
Portfolio Manager, Bituminous, Boards, and Insulations

Bulletin Number: M15-00X

Date: March XX, 2015

Distribution: External

Page 2 of 2

Comparison of Roof Insulation EPD's

Impact	Measure	Closed Cell SPF (Roofing)	XPS	HD Mineral Wool Board	Polyiso Roof Insulation
Global Warming Potential (GWP)	kg CO ₂ eq.	34.3	60.8	7.9	2.8
Ozone Depletion Potential (ODP)	kg CFC-11 eq.	16.7x10 ⁻⁸	3,630x10 ⁻⁸	11.8x10 ⁻⁸	9.4x10 ⁻⁸
Smog Formation Potential	Kg O ₃ eq.	0.27	0.21	0.25	0.18
Acidification Potential	Moles H ⁺ eq.	1,073x10 ⁻³	1,780x10 ⁻³	2,750x10 ⁻³	9.1x10 ⁻³
Eutrophication Potential	kg N eq.	1.33x10 ⁻⁴	9.85x10 ⁻⁴	9.40x10 ⁻⁴	14.0x10 ⁻⁴
Primary Energy Demand	MJ	136	81	99	53

- Published EPD Values with $R_{S1} = 1\text{m}^2 \text{K/W}$ for 1m^2 of insulation over 60 year building service life.
- XPS EPD from a single manufacturer; all others from industry EPD.