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PIMA Completes ISO14044-Compliant LCA for Polyiso Building Insulation

Achievement Sets New Benchmark for Transparency in Reporting Environmental Impacts

Bethesda, MD, Feb. 22, 2012 -- As part of its ongoing efforts to promote environmental awareness and reporting transparency, the Polyisocyanurate Insulation Manufacturers Association (PIMA) has recently completed a comprehensive Life Cycle Assessment (LCA) of polyiso building insulation conducted in accordance with the framework and principles established in ISO 14040ⁱ and fully compliant with the requirements established by ISO 14044ⁱⁱ, including independent peer review.

As a result, the PIMA LCA will serve as a template for PIMA members to report the environmental attributes of individual polyiso products in compliance with requirements for Type III Environmental Product Declarations. At this time, the PIMA LCA is the first ISO 14044-compliant LCA conducted for a non-structural building insulation product in North America and the first ISO 14044-compliant LCA conducted to provide a generic baseline for insulation products produced by different manufacturers.

To fully comply with the requirements of ISO 14044, the PIMA-sponsored LCA was conducted by PE Americas, a division of a world-leading environmental consulting firm and the developer of internationally-recognized LCA software tools. The LCA addresses all critical inputs and processes involved in raw material acquisition, manufacture and transport of polyiso building insulation. In addition, the LCA addresses a broad range of environmental impact categories, including key measures of air and water pollution, energy and resource intensity, environmental toxicity and global warming potential. Finally, the LCA was subjected to a thorough critical review by scientific peers in accordance with ISO 14044 requirements.

The benefits of ISO 14044-compliant LCA are numerous.

- First, LCA offers process consistency and reporting transparency for all building stakeholders.
- For architects and other building designers, LCA offers an opportunity for assessment of material alternatives while serving as a basic building block to evaluate the overall impact of whole-buildings.
- For building product manufacturers and their suppliers, ISO 14044-compliant LCAs establish a reliable initial benchmark for continuous improvement programs to further reduce product environmental impacts.
- Finally, for policymakers and standards developers, LCA provides a well-defined and consistent basis for the inclusion of environmental impact criteria within building codes and standards.

In addition to the general benefits of LCA, the generic baseline used within the PIMA LCA will help accelerate the reporting of brand-specific LCA data by individual PIMA manufacturing members and serve as the foundation for a new level of product labeling and reporting advocated by leading sustainability experts. This new level of product labeling is called a Type III Environmental Product Declaration (EPD), which is further defined under ISO 14025ⁱⁱⁱ and ISO 21930^{iv}. EPDs are succinct, fact-based documents that provide specific information by category. Unlike self-declarations often used by manufacturers to claim environmental benefits related to a product or its use, EPDs require independent validation of a product's environmental impact. As such, EPDs promote greater transparency of important environmental impact information and ease buyers' efforts to make objective comparisons among similar products.

A critical principle of TYPE III Environmental Product Declarations is that of comparability. In order to enable effective comparison of EPDs, ISO 14025 requires the development and third party verification of a set of rules and guidelines called a Product Category Rule (PCR) for a specific family of products. In the case of polyiso, the PIMA LCA will enable members to establish EPDs of their products using a PCR developed and verified by Underwriters Laboratory (UL 110116^v), which covers the broader product category of building envelope thermal insulation. The use of this recognized PCR provides an additional benefit

for the building designer by allowing the data from individual product EPDs based on the PIMA LCA to be effectively compared to Type III EPDs for similar building envelope thermal insulation products also covered by UL 110116.

Awareness of LCA and EPDs is certain to increase significantly over the next few years. The LEED Green Building Rating System currently awards Pilot Credit points for the use of LCA to evaluate building structure and envelope assemblies, and credit for EPDs is included as part of a proposed Non-Structural Materials Credit within the next version of the LEED system. In addition, whole-building LCA is included as a jurisdictional option in the International Green Construction Code (IgCC), a newly-approved model building code developed by the International Codes Council. Finally, the use of EPDs typically is included as a criterion within environmentally preferable product evaluation standards, including the ANSI/NSF140 Standard for Sustainable Carpet Assessment published in 2007, and ANSI/NSF 347 Standard for Sustainable Single-Ply Roofing Membranes, which will be published in 2012. In the near future, sustainability experts predict that many additional product and building standards will incorporate requirements for the use of LCA and EPDs.

The groundwork laid by PIMA to enable its members to provide ISO-compliant Type III EPDs to the marketplace has been recognized as significant step in increasing transparency in environmental product reporting. As stated by Jared Blum, President of PIMA.

“In today’s global economy, the challenge of managing the supply and production chain is a complex task facing producers in every industry. And when it comes to manufacturing environmentally sustainable products, the plethora of competing environmental product claims only magnifies this challenge. What manufacturers, architects, designers and purchasers need is objective and unbiased environmental information presented in a consistent and understandable manner. PIMA’s effort to establish a sound basis for its members to report the environmental impacts of their products is certainly a step in the right direction and hopefully will encourage other producers to follow.”

About PIMA and Polyiso

For over 20 years, PIMA has served as the unified voice of the rigid polyiso industry proactively advocating for safe, cost-effective, sustainable and energy efficient construction. PIMA’s members include a synergistic partnership of polyiso manufacturers and industry suppliers. Polyiso is one of the most widely used and cost-effective insulation products available in North America, and polyiso insulation accounts for over two-thirds of all above-deck nonresidential roofing applications. To learn more visit www.polyiso.org

ⁱ ISO 14040-2006 Environmental Management - Life Cycle Assessment – Principles and Framework. International Organization for Standardization (ISO).

ⁱⁱ ISO 14044-2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines. International Organization for Standardization (ISO).

ⁱⁱⁱ ISO 14025-2006 Environmental labels and declarations - Type III Environmental Declarations - Principles and Procedures. International Organization for Standardization (ISO).

^{iv} ISO 21930-2007 Sustainability in Building construction - Environmental Declaration of Building Products. International Organization for Standardization (ISO).

^v UL 110116-2011 Product Category Rule for Building Envelope Thermal Insulation. Underwriters Laboratories.