PIMA Technical Bulletin #101

Polyiso Insulation

180 Day Sample Conditioning Procedure for Impermeable Faced Polyiso

About Polyiso Insulation

Polyiso is a rigid foam insulation used in over 70% of commercial roof construction, in commercial sidewall construction and in residential construction.

The Benefits of using Polyiso include:

- *Quality Mark™ certified LTTR-values for permeable faced products*
- *Highest R-value per inch of thickness*
- *Excellent fire test performance*
- *Moisture resistant*
- *Dimensional stability*
- *Superior compressive strength*
- *Extensive building code approvals*
- *Cost effective*
- *Recycled content*
- *Zero ozone depletion potential*
- *Virtually no global warming potential*
- *Preferred insurance ratings*
- *Nationwide availability*
- *Thinner walls and roofs with shorter fasteners*
- *Compatible with most roofing systems*

PIMA and polyiso products have received many environmental awards. These include an honorable mention in the Sustainable Buildings Industry Council's (SBIC) 2003 "Best Practice" Sustainability Awards Program and the U.S. EPA's Climate Protection Award for the association's leadership in promoting energy efficiency and climate protection. The EPA also awarded PIMA and its members the Stratospheric Ozone Protection Award for "leadership in CFC phase-out in polyiso insulation and in recognition of exceptional contributions to global environmental protection."

POLYISO
The top performer.

1. Scope

This procedure covers 180 day sample conditioning for impermeable faced polyiso insulation, prior to testing for thermal resistance (R-value).

1.1 The thermal resistance (R-value) of foil-faced or other impermeable faced polyiso products shall be determined by the procedure set forth in this technical bulletin. This procedure complies with the requirements of Section 11.1.2, Thermal Resistance Conditioning of ASTM C 1289 and Section 6.3.2, Thermal Resistance Conditioning of CAN/ULC-S704.

Note: Long-Term Thermal Resistance values (LTTR) for both ASTM C1289 Type II Class 1 products and for CAN/ULC-S704 products, manufactured with permeable facers, shall be determined by the procedure set forth in CAN/ULC-S770, Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulation. LTTR is equivalent to a 15-year time-weighted average R-value. For more information on LTTR, see the PIMA Web site http://polyiso.org/ContentPage/ContentPage5,87.html

2. Applicable Documents

2.1 ASTM C 177: Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

2.2 ASTM C 518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

2.3 ASTM C 1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

2.4 CAN/ULC-S704: Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced.

2.5 ASTM C 1363: Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus

3. Samples

Sample shall be full size (minimum 4' x 4') and thickness product.

4. Sample Conditioning

Samples shall be stored for 180 +/- 5 days at a temperature of 23.4 +/- 2°C (73.4 +/-°F) and a relative humidity of 50 +/- 5%, separated by a minimum one-half inch (12mm) of air space, unwrapped, and in still air. This sample conditioning temperature and humidity specified is a thermal conditioning option in ASTM C 1289 and CAN/ULC-S704

and shall be used prior to the specific conditioning procedure referenced in ASTM C 518. Sample conditioning shall start no later than seven days after product manufacture. After the conditioning period, the specimens shall be prepared in dimensions appropriate to the ASTM thermal transmission test method selected.

5. Testing

Testing of prepared specimens shall be started within four hours, in accordance with ASTM C 177, C 518, or C 1363. The mean reference test temperature shall be 24 +/- 1 C (75 +/- 2 F). All thermal resistance testing shall be conducted with a minimum temperature differential of 22 C (40 F).

5.1 All laboratories performing the thermal tests shall be NAVLAP (National Voluntary Laboratory Accreditation Program) or SCC (Standards Council of Canada) approved or otherwise certified as a recognized third party laboratory.

6. Reporting

Report in accordance with the ASTM thermal transmission test method selected.

PIMA

For over 20 years, PIMA (Polyisocyanurate Insulation Manufacturers Association) has served as the unified voice of the rigid polyiso industry proactively advocating for safe, cost-effective, sustainable and energy efficient construction.

PIMA produces technical bulletins in an effort to address frequently asked questions about polyiso insulation. PIMA's technical bulletins are published to help expand the knowledge of specifiers and contractors and to build consensus on the performance characteristics of polyiso. Individual companies should be consulted for specifics about their respective products.

PIMA's membership consists of manufacturers of polyiso insulation and suppliers to the industry. Our members account for a majority of all of the polyiso produced in North America.

SAFETY

Polyiso insulation, like wood and other organic building materials is combustible. Therefore, it should not be exposed to an ignition source of sufficient heat and intensity (e.g., flames, fire, sparks, etc.) during transit, storage or product application. Consult the product label and/or the PIMA members' Material Safety Data Sheets (MSDS) for specific safety instructions. In the United States, follow all regulations from OSHA, NFPA and local fire authorities; in Canada, follow all regulations from Health Canada Occupational Health and Safety Act (WMHIS) and local fire authorities.

For more information on polyisocyanurate insulation, visit www.polyiso.org

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