

Polyiso Insulation

180 Day Sample Conditioning Procedure for Impermeable Faced Polyiso

About Polyiso Insulation

Polyiso is a rigid foam insulation used in more than 70% of commercial roof construction and offers a continuous insulation solution for commercial and residential wall assemblies. As one of North America's most widely used and readily available building products, Polyiso is a cost-effective insulation option for reducing building energy use and improving the overall service-life of roofs and walls.

The benefits of using Polyiso include:

- High R-value per inch of thickness
- Excellent fire test performance
- Extensive building code approvals
- Cost-effective continuous insulation (ci) solution
- Compatible with most roof and wall systems
- Dimensional stability
- Compressive strength
- Moisture resistance
- Thinner walls and roofs with shorter fasteners
- Long service life
- Preferred insurance ratings
- Virtually no global warming potential
- Zero ozone depletion potential
- Recyclable through reuse
- Recycled content (amount varies by product)
- Regional materials (nationwide production network)
- QualityMark^{CM} certified LTTR-values

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 +/- 5°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



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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 more than 30 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's membership includes manufacturers of polyiso insulation and suppliers to the industry. The products of PIMA's members comprise the majority of the polyiso produced in North America.

PIMA produces technical bulletins to address frequently asked questions about polyiso insulation. These publications update and inform architects, specifiers, and contractors about and build consensus on the performance characteristics of polyiso insulation. Individual companies can provide specific information about their respective polyiso products.

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

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