

FACTOID: Polyurethane Isocyanurate

Rigid Poly(urethane) Iso(cyanurate) closed-cell "polyiso" (PIR) foam is an improvement on polyurethane foam (PUR). Once manufactured, polyiso foam is rigid, will not soften or melt and remains strong even at elevated temperatures.

Widely used for insulation, depending on the manufacturing process polyiso has an R-value of 5.3 to 6.5 per inch of thickness. One of the most widely used and cost effective insulation products in North America, closed cell polyiso has been cited by the U.S. Environmental Protection Agency (EPA) for its responsible impact on the environment and has earned Energy Star standing.

Compression strength is the ability of a rigid foam board to resist deformation and maintain its original shape when a force or load is applied. Compression strength is an important physical property defined as a unit of force applied over an area usually expressed as 'pounds per square inch' (psi). All polyiso products in general have a minimum compressive strength of 16 psi. Actual compressive strength may vary above the minimum depending on the manufacturer.

Polyiso is a thermoset material which stays intact during extended fire exposure and thereby meets many necessary ratings dictated by many building codes. The testing and evaluation of polyiso to show conformance with code requirements is conducted by various national agencies:

- Center for Applied Engineering, Inc.
- ETL Testing Laboratories, Inc.
- Factory Mutual Research Corporation
- Inchcape Testing Services, Inc.
- Omega Point Laboratories, Inc.
- RADCO
- SGS U.S. Testing Company, Inc.
- Southwest Research Institute
- Underwriters Laboratories, Inc.
- Warnock Hersey Laboratories

In general polyiso products:

- Deliver the highest R-value per inch of thickness.
- Are moisture resistant and water repellent.
- Are resistant to many types of solvents.
- Possess dimensional stability.
- Demonstrate excellent performance in fire tests.

The foregoing was condensed from Technical Bulletins authored by the Polyisocyanurate Insulation Manufacturers Association.

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