



## Thermoplastic Single Ply and Multi-Ply Roofing Systems

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### **FLEX ISO-II and FLEX ISO-III TAPERED ROOF INSULATION** **TECHNICAL DATA SHEET**

#### **PRODUCT DESCRIPTION AND RECOMMENDED USES**

**FLEX ISO-II Tapered** is specified for use in hot asphalt, Flex modified bitumen and Flex Thermoplastic single ply membrane systems. It is manufactured in a tapered profile to attain positive drainage.

**FLEX ISO-III Tapered** is typically specified for mechanically attached Flex thermoplastic single ply membrane systems and cold applied Flex modified bitumen roof membrane systems. It is manufactured in a tapered profile to attain positive drainage. Flex ISO-III Tapered is a closed cell polyiso foam core integrally laminated to heavy coated-glass facers. **DO NOT USE WITH HOT APPLIED ROOFING SYSTEMS.**

**FLEX ISO-II and FLEX ISO-III Tapered** are also available in 25-psi formula. Available in 4'x4' (1220mm x 1220mm) panels only.

#### **LONG TERM THERMAL RESISTANCE (LTTR)\***

##### **FLEX ISO-II Tapered and FLEX ISO-III Tapered**

Marking	Thickness		Slope per		Average	
	In	mm	Ft	30.5 cm	LTTR Value*	RSI**
AA	0.5 - 1.0	12 - 25	1/8"	3 mm	4.5	.79
A	1.0 - 1.5	25 - 38	1/8"	3 mm	7.5	1.32
B	1.5 - 2.0	38 - 50	1/8"	3 mm	10.6	1.86
C	2.0 - 2.5	50 - 63	1/8"	3 mm	13.7	2.40
X	0.5 - 1.5	12 - 38	1/4"	6 mm	6.0	1.06
Y	1.5 - 2.5	38 - 63	1/4"	6 mm	12.1	2.13
G	1.0 - 2.0	25 - 50	1/4"	6 mm	9.0	1.58
H	2.0 - 3.0	50 - 76	1/4"	6 mm	15.3	2.69
JJ	0.5 - 1.25	12 - 32	3/16"	5 mm	5.3	.93
KK	1.25 - 2.0	32 - 50	3/16"	5 mm	9.8	1.72
Q	0.5 - 2.5	12 - 63	1/2"	12 mm	9.0	1.58

\*LTTR values of the foam were determined in accordance with CAN/ULC-5770 and ASTM-C1289, Annex A1. Samples were third-party selected by an accredited material testing laboratory. The LTTR results were reviewed and authorized by FM Approvals and certified by the PIMA Quality Mark Program.

\*\* RSI is the metric expression of R-value ( $m^2 \times K/W$ ). To calculate the RSI, multiply the LTTR-value by .176.

Flex recommends multi-layering when the desired insulation thicknesses are greater than 2.7 inches.

## **INSTALLATION**

Before installation begins, the roof deck should be firm, well attached, even, clean and dry. Proper attachment of the insulation is necessary to prevent roof failures. Flex is not responsible for any damage caused by improper attachment. Flex iso products can be attached to decks that are approved by FM Approvals and local codes. Flex is not responsible for determining the suitability of the deck. Flex ISO products shall be kept dry before, during and after installation. Install only as much Flex roof insulation as can be covered the same day with completed roofing. Although Flex ISO has been designed to withstand normal foot traffic, protection from damage by construction traffic and/or abuse is extremely important. Roof surface protection such as plywood shall be used in areas where storage and staging are planned and heavy or repeated traffic is anticipated during or after installation. A two layer application of Flex ISO is strongly recommended. The joints in each layer should be offset in order to avoid a vertically continuous joint through the total insulation thickness. Two layers (or more) with joints staggered can provide improved insulation performance by eliminating thermal bridges. This method also reduces condensation potential and thermal stress on the roof membrane. Mechanical fastening is the recommended method of attachment over nailable decks such as steel or wood. Flex ISO II may be installed to a structural concrete deck with hot bitumen or Flex Deck Insulation Adhesive. For further recommendations regarding attachment please contact Flex Technical Services.

## **PHYSICAL PROPERTIES (Foam Portion)**

<b><u>Property</u></b>	<b><u>Test Method</u></b>	<b><u>Typical Results</u></b>
Dimensional Stability	ASTM D 2126	<2%
Compressive Strength (10% Deformation)	ASTM D 1621	20 psi (138 kPa) 25 psi (172 kPa)
Water Absorption	ASTM C 209 ASTM D 2842	<1% <3.5%
Moisture Vapor Transmission	ASTM E 96	< 1.5 perm (85.0ng/(Pa•s•m <sup>2</sup> ))
Product Density	ASTM D 1622	Nominal 2.0 pcf (32.02 kg/m <sup>3</sup> )
** Flame Spread	ASTM E 84 (full 10 min. test)	<75**
Smoke Developed	ASTM E 84 (full 10 min. test)	50-170**
Tensile Strength	ASTM D 1623	>730 psf (35 KPa)
Service Temperature		-100 to 250°F (-73 to 122°C)

\*\* The numerical ratings as determined by ASTM Test Method E84 are not intended to reflect hazards presented by this or any other material under actual fire conditions. A flame spread index of 75 or less and smoke development of 450 or less meet code requirements regarding flame spread and smoke development for foam plastic roof insulation. However the codes exempt foam plastic insulation when used in roof deck constructions that comply as an assembly with FM 4450 or UL 1256 (see IBC, NBC, UBC, and SBS Sections on Foam Plastic Insulation (Chapter 26). Smoke development does not apply to roofing.

The physical properties listed above are presented as typical average values as determined by accepted ASTM test methods and are subject to normal manufacturing variation.

## **STORAGE**

Factory applied packaging is intended only for protection during transit. When stored outdoors or on the job site the insulation should be stacked on pallets at least four inches above ground level and be completely covered with a weatherproof covering such as a tarpaulin. The temporary factory applied packaging should be slit or removed to prevent accumulation of condensation. Roof insulation that has become wet or damaged should be removed and replaced with solid, dry insulation.

## **CAUTION**

**DO NOT LEAVE EXPOSED** This product is a polyiso organic plastic foam and will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. Like other organic materials this product will release smoke if ignited. Do not apply flame directly to Flex Roof Insulations. This product should be used only in strict accordance with Flex's recommended uses and application instructions.

## **LIMITATION OF LIABILITY**

Other than the aforementioned representations and descriptions, Flex Membrane International, Inc. (hereafter, "Seller") makes no other representations or warranties as to the insulation sold herein. The Seller disclaims all other warranties, express or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose. Seller does however have a limited warranty as to the LTTR-value of the insulation, the terms of which are available upon request from the Seller. The Seller shall not be liable for any incidental or consequential damages including the cost of installation, removal, repair, or replacement of this product. The Buyer's remedies shall be limited exclusively to, at Seller's option, the repayment of the purchase price or resupply of product manufactured by Flex in a quantity equal to that of the nonconforming product. Flex distributors, agents, salespersons or other independent representatives have no authority to waive or alter the above limitation of liability and remedies.