



Product Data Sheet

MULE-HIDE POLY ISO²™ ROOF INSULATION

PRODUCT DESCRIPTION

Mule-Hide Poly ISO 2™ (flat) and Poly ISO 2™ Tapered (Poly ISO 2™ insulations consist of a closed-cell polyisocyanurate foam core laminated to heavy, (non-asphaltic) glass fiber reinforced felt facers. Poly ISO 2™ insulations are compatible with all Mule-Hide membranes and accessories and are available in 20 and 25 psi densities



BASIC USES

Mule-Hide Poly ISO 2™ insulation boards may be used for ballasted, mechanically attached and fully adhered single-ply roofing systems. Poly ISO 2™ insulation board may be installed over approved decks and substrates on new construction, tearoffs, and recover (retrofit) projects. Rated for use in UL Class A and FM Class 1 assemblies

TYPICAL PHYSICAL PROPERTIES (flat and tapered)

Property	Test Method	Typical Results
Dimensional Stability	ASTM D-2126	Less than 2% Linear Change
Compressive Strength	ASTM D-1621 (10% deformation)	20 PSI or 25 PSI
Water Absorption	ASTM C-209, ASTM D-2842	< 1.5%, < 3.5%
Moisture Vapor Transmission	ASTM E-96	Less than 1.5 Perm
Product Density	ASTM D-1622	Nominal 2.0 lbs per cubic foot
Flame Spread (foam core)	ASTM E-84 (full 10 min. test)	40 to 60*
Smoke Developed	ASTM E-84 (full 10 min. test)	50 to 170*
Service Temperature	---	-100°F to +250°F Max**
Tensile Strength	ASTM D-1623	>730 psf (35 kPa)

* The numerical ratings are determined by ASTM Test Method E-84 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.

**ASTM C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation. The physical properties above are presented as typical average values as determined by accepted ASTM test methods and are subject normal manufacturing variation.

Mule-Hide Poly ISO 2™ (flat)

LTTR R-Value ¹ (Revised Jan-2014)	Thickness ²		RSI ⁴	Flute Spanability	
	Inches	mm		Inches	mm
5.7	1.0	25.4	1.00	2.625	66.68
8.6	1.5	38.1	1.51	4.375	111.13
11.4	2.0	50.8	2.01	4.375	111.13
14.4	2.5	63.5	2.53	4.375	111.13
17.4	3.0 ³	76.2	3.06	4.375	111.13
20.5	3.5 ³	88.9	3.61	4.375	111.13
23.6	4.0 ³	101.6	4.16	4.375	111.13

1. LTTR (Long Term Thermal Resistance) values were determined in accordance with CAN/ULC-S770 and ASTM C1289 (Revised Jan-2014), Annex A1. All test samples were third-party selected and tested by an accredited material testing laboratory. The LTTR results were reviewed and authorized by FM Approvals and certified by the PIMA Quality Mark Program
2. Other thicknesses available upon special request
3. Multi-layer application is suggested when the insulation thickness exceeds 2.7".
4. RSI is the metric expression of R-value (m² * K/W)

LTTR Value	ASTM C1289-11 (revised Jan-2014)
20	2 layers of 1.8" Poly ISO 2
25	2 layers of 2.2" Poly ISO 2
30	2 layers of 2.6" Poly ISO 2
35	2 layers of 3.1" Poly ISO 2
40	2 layers of 3.5" Poly ISO 2

Poly ISO 2™ Recycle Content for Flat and Tapered Material

Between 52.9% and 28.9% recycled materials by weight
Refer to Mule-Hide LEED memo

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TYPICAL PHYSICAL PROPERTIES – Continued

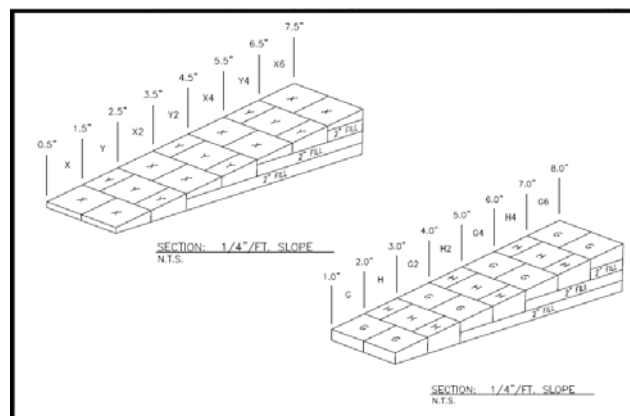
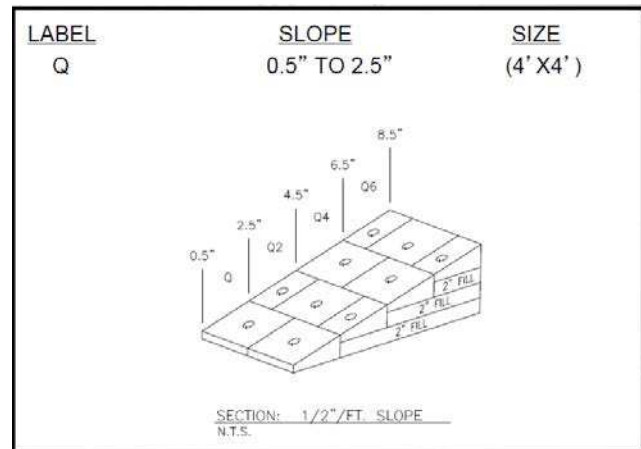
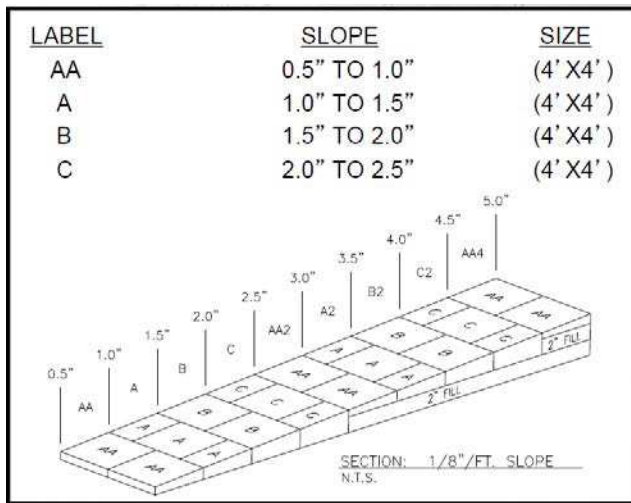
Mule-Hide Poly ISO 2™ Tapered						
Panel Label	AVERAGE		THICKNESS ³		SLOPE	
	LTTR ¹	RSI ²	IN	MM	Per Ft.	Percent
AA	4.3	0.76	0.5 – 1.0	12 - 25	1/8"	1%
A	7.1	1.25	1.0 – 1.5	25 - 38	1/8"	1%
B	10.0	1.76	1.5 – 2.0	38 – 50	1/8"	1%
C	12.9	2.27	2.0 – 2.5	50 – 63	1/8"	1%
X	5.7	1.00	0.5 – 1.5	12 – 38	1/4"	2%
Y	11.4	2.01	1.5 - 2.5	38 – 63	1/4"	2%
Q	8.6	1.51	0.5 – 2.5	12 – 63	1/2"	4%

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2. RSI is the metric expression of R-value ($m^2 \cdot K/W$)

3. Other thicknesses MAY available upon special request

SUPPLEMENTAL INFORMATION



Product Data Sheet

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PACKAGING

Factory applied packaging is only intended for protection during transit. When stored outside or at the job site, the insulation must be stored at least 4" above ground level and completely covered with a weatherproof covering such as a tarpaulin. Warning - Do Not Leave Exposed: This product will burn if exposed to an ignition source of sufficient heat and intensity, or an open flame.

CODE APPROVALS/COMPLIANCE

Poly ISO 2™ complies with the requirements of the following specifications, test and code requirements when properly installed.

- * Federal Specification HH-I-1972/GEN and HH-I-1972/2, Class 1 (have been cancelled)
- * ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi)
- * CAN/ULC-S704 Type 2, Class 3 or Type 3, Class 3
- * FM Standard 4450/4470 Approval, Class 1
- * UL Standard 1256 Classification
- * UL Standard 790 Classification
- * UL Standard 263 Fire Resistance Classification

Mule-Hide Poly ISO 2™ is manufactured using CFC-, HCFC-, and HFC-free foam blowing technology with zero ozone depletion potential (ODP) and virtually no (negligible) global warming potential (GWP).

INSTALLATION INSTRUCTIONS

Ballasted Single-Ply Membrane Systems - Mule-Hide Poly ISO 2™ does not require attachment to the deck in this system. All boards must be tightly fitted together to prevent movement, separation or damage during the installation of the membrane system. All gaps greater than 1/4" must be filled. After the membrane is installed, sufficient amounts of ballast must be applied to prevent membrane and insulation movement. Refer to the Mule-Hide Manual and FM Loss Prevention Data Sheet 1-29 for information regarding ballasting guidelines.

Mechanically Attached Single-Ply Membrane Systems - Mule-Hide Poly ISO 2™ should be attached with Mule-Hide fasteners and insulation plates (or FM Approved fasteners) using a minimum of 4 fasteners per 4'x 4' board (1 fastener per 4 square feet) and a minimum of 6 fasteners per 4'x 8' board (1 fastener per 5.33 square feet). Refer to the Mule-Hide Manual for proper fastener placement.

Fully Adhered Single-Ply Membrane Systems - Mule-Hide Poly ISO 2™ should be installed with the perforated side down. Insulation attachment will vary depending upon insulation thickness and job requirements. If the top layer is less than 2" thick, install a minimum of 8 fasteners per 4'x 4' board (1 fastener per 2 square feet) and a minimum of 16 fasteners per 4'x 8' board (1 fastener per 2 square feet). If the top layer is 2" thick or thicker, install 4 fasteners per 4' x 4' or 8 fasteners per 4' x 8' insulation board. Refer to the Mule-Hide Manual for proper fastener density and placement. Additional fastening may be required for certain job conditions.

In some instances hot steep asphalt or insulation adhesive may be used to attach the Mule-Hide Poly ISO 2™ to approved concrete decks. Only 4'x 4' boards may be used. Contact Mule-Hide's Technical Department for specific requirements and procedures.

PROTECTION & SAFETY

Mule-Hide maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers. Mule-Hide's Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Mule-Hide products in your facilities.

Product Data Sheet

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ADDITIONAL INFORMATION

The information given on this PDS is subject to change without notice. Always check the Mule-Hide website at www.mulehide.com for the latest information, changes and updates or contact Mule-Hide Products Company at 800-786-1492.

DISCLAIMER

The statements provided concerning the material shown are intended as a guide for material usage and are believed to be true and accurate at the time of printing. No statement made by anyone may supersede this information, except when done in writing by Mule-Hide Products Co., Inc. Since the manner of use is beyond our control, Mule-Hide does not authorize anyone to make any warranty of merchantability or fitness for any particular purpose or any other warranty, guarantee or representation, expressed or implied, concerning this material. This product may be eligible for a Mule-Hide warranty, please check the Mule-Hide website at www.mulehide.com or contact Mule-Hide directly at 800-786-1492 for details. Buyer and user accept the product under these conditions and assume the risk of any failure, any injury person or property (including that of the user), loss or liability resulting from the handling, storage or use of the product whether or not it is handled, stored or used in accordance with the directions or specifications. Mule-Hide must be notified in writing of any claims and be given the opportunity to inspect the alleged failure before repairs are made.