



Product Data Sheet

MULE-HIDE WHITE-ON-BLACK 45-MIL EPDM MEMBRANE

PRODUCT DESCRIPTION

Mule-Hide 45-mil White-on-Black EPDM is a high performance non-reinforced membrane that stands up to tearing, impacts, punctures and normal roof traffic. The elastomeric properties of the EPDM membrane compensate for thermal shock and building movement. EPDM membranes provide excellent resistance to ozone and aging. The membrane is manufactured in accordance with the guidelines established by the RMA (Rubber Manufacturers Association) and meets or exceeds the ASTM Standard Specification D 4637, Type I.



BASIC USES

The White-on-Black 45-mil EPDM membrane is used in fully adhered roofing systems for Modular Building Construction only. The system must be installed over an acceptable roof insulation or other suitable substrate. See the Mule-Hide Specifications Manual for complete specifications and details.

SPECIFICATIONS

Available roll sizes for Mule-Hide 45-mil White-on-Black EPDM membrane are;
 Widths: 11', 13' 15' and 17'
 Lengths: 305'

Physical Properties	Test Method	SPEC (Pass)	Typical Values
Tolerance on Nominal Thickness, %	ASTM D 412	± 10	± 10
Weight, lbf/ft ² (kg/m ²)			0.29 (1.43)
Tensile Strength, min, psi (Mpa)	ASTM D 412	1305 (9)	1685 (11.6)
Elongation, Ultimate, min, %	ASTM D 412	300	420
Tear Strength, min, lbf/in (kN/m)	ASTM D 624 (Die C)	150 (26.3)	200 (35.0)
Factory Seam Strength, min.	ASTM D 816 Modified	Membrane Rupture	Membrane Rupture
Resistance to Heat Aging* Properties after 1 weeks @ 240°F (116°C)	ASTM D 573		
Tensile Strength, min, psi(MPa)	ASTM D 412	1205 (8.3)	1550 (10.7)
Elongation, Ultimate, min, %	ASTM D 412	200	250
Tear Resistance, min,lbf/in (kN/m)	ASTM D 624	125 (21.9)	185 (32.4)
Linear Dimensional Change, max, %	ASTM D 1204	± 1.0	-0.5
Ozone Resistance* Conditions after exposure 100 pphm Ozone in air for 168 hrs @ 104°F(40°C) Specimen is at 50% strain	ASTM D 1149	No Cracks	No Cracks
Brittleness Temp., max, deg. F (deg.C)*	ASTM D 746	-49 (-45)	-67 (-55)
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C), Change in mass, max, %	ASTM D 471	+8, -2	+3.6
Water Vapor Permeability* max, perm-mils	ASTM E 96 (Proc. B or BW)	0.10	0.05
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, 4000 hrs. exposure, 176°F (80°C) black panel temperature	ASTM D 4637 Conditions	No Cracks No Cracking	No Cracks No Cracking
Fungi Resistance	ASTM G21	N/A	0 (no growth)
*Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests run on a statistical basis to ensure overall long-term performance of the sheeting.			

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification or specification range for any particular property of this product



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BENEFITS & SUPPLEMENTAL STATEMENTS

- Quality System
- Ease of Installation
- Energy efficiency – white color reflects sunlight
- Low temperature flexibility
- Fully adhered system is lightweight

CODE APPROVALS/COMPLIANCE

A variety of Factory Mutual Ratings and Underwriters Laboratories Classifications are available. Contact Mule-Hide Technical Department for additional information. Meets or exceeds ASTM D4637 for Type I non-reinforced EPDM single-ply roofing membrane.

INSTALLATION INSTRUCTIONS

- 1) Approved insulation shall be attached to the roof deck with an approved insulation adhesive or approved fasteners and plates. Install insulation with its largest dimension perpendicular to the direction of the membrane seams where possible.
- 2) Fully Adhered Roofing System
 - a) The membrane is required to be mechanically attached at the base of all vertical surfaces, roof edges, and angle changes.
 - b) The field of the roof is fully adhered to the substrate with Mule-Hide membrane adhesive.
- 4) Field seams are made with seam tape and tape primer.
- 5) All details will be done in accordance with Mule-Hide details.
- 6) On projects where a Mule-Hide Standard or Premium Warranty is requested, an authorized Mule-Hide representative shall inspect all completed work. This is only a brief summary and not the complete specification. The Mule-Hide Specifications, Details, Technical Bulletins, and associated documents should be thoroughly reviewed prior to starting any project. Contact Mule-Hide Products for additional information.

PRECAUTIONS

- Surfaces may be slippery when wet, or due to frost and ice build-up. Exercise caution to prevent falls.
- Mule-Hide White-on-Black EPDM membranes are highly reflective to sunlight. Workers should dress appropriately, wear sunscreen, and wear sunglasses that filter out UV light.
- Exercise care when working near roof edge. Roof edges may not be visible when surrounding area is covered with snow.
- Store Mule-Hide membrane in original wrappings in a cool, shaded area. Cover with light-colored, breathable, waterproof tarpaulins.

PROTECTION & SAFETY

Mule-Hide maintains Safety Data Sheets on all of its non-exempt products. 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 Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Mule-Hide products in your facilities.



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SUPPLEMENTAL APPROVALS, STATEMENTS AND CHARACTERISTICS

- 1) Mule-Hide White-on-Black EPDM meets and exceeds the requirements of **ASTM D4637¹** Type I, Standard Specification for non-reinforced EPDM Sheet Used in Single-Ply Roofing
- 2) **Radiative Properties** for ENERGY STAR®, Cool Roof Rating Council (CRRC) and LEED™

DESCRIPTION	TEST METHOD	WHITE on BLACK EPDM
ENERGY STAR initial solar reflectance	Solar Spectrum Reflectometer	0.76
ENERGY STAR solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.64
ENERGY STAR initial emissivity	ASTM E408	0.90
CRRC initial solar reflectance	ASTM C1549	0.76
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.64
CRRC initial thermal emittance	ASTM C1371	0.90
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.87
CRRC SRI (Solar Reflectance Index)	ASTM E1980	94
CRRC SRI (Solar Reflectance Index after 3 yrs)	ASTM E1980	77
CRRC Product ID	N/A	0670-0007
LEED thermal emittance	ASTM E408	0.91

- 3) Mule-Hide White-on-Black EPDM membranes are LEED compliant and are ENERGY STAR® and California Title 24 rated roof products.

An ENERGY STAR qualified low slope roof product must have an initial solar reflectance of at least 0.65 and a 3-year aged solar reflectance of at least 0.50. Cleaning the aged roof surface is not permitted by the ENERGY STAR test protocol. Energy Star is only valid in the United States for Roofing Products.

The Cool Roof Rating Council (CRRC) does not specify minimums for reflectance or emittance but they do require specific protocols for testing and reporting. Cleaning of the aged roof surface is not permitted for determination of radiative properties after 3 years.

A LEED "point" may be earned if a roof material is ENERGY STAR qualified and has a thermal emittance of at least 0.90 as determined by ASTM E408.

Solar Reflectance Index (SRI) is calculated per ASTM E 1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values, and particularly cool materials can even exceed 100.

California Title 24 requires an initial minimum reflectance of 0.70 and emittance of 0.75 as determined by CRRC.

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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.



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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.