

# PRODUCT DATA SHEET

## MULE-HIDE PVC MEMBRANE

### PRODUCT DESCRIPTION

Mule-Hide PVC Membrane is a thick embossed, polyester reinforced, heat-weldable single-ply thermoplastic PVC (Poly Vinyl Chloride) membrane. It is used in mechanically attached and fully adhered roofing assemblies. It may also be used as flexible membrane flashings for walls, curbs, etc. Meets or exceeds all requirements of ASTM 4434, Type III. The membrane is specifically formulated for long-term weather resistance with low volatility plasticizer and superior outdoor grade titanium dioxide pigment. Three thicknesses are available: 50-mil, 60-mil and 80-mil.

### BASIC USES

The system is primarily used as a mechanically attached roofing system in new construction, reroofing and recover (retrofit) applications. The system must be installed over acceptable roof insulation or other suitable substrate. This system may also be installed in a fully adhered configuration using Mule-Hide PVC Bonding Adhesive. See the Mule-Hide PVC Specifications Manual for complete details.

### SPECIFICATIONS

Color:	White Top/Light Gray Bottom		
Material:	<b>50-mil (.050")</b>	<b>60-mil (.060")</b>	<b>80-mil (.080")</b>
Weight:	0.324 lb/ft <sup>2</sup>	0.395 lb/ft <sup>2</sup>	0.547 lb/ft <sup>2</sup>
Sizes:	Field Sheet - 81" x 100' Perimeter Sheet - 40.5" x 100'	Field Sheet - 81" x 80' Perimeter Sheet - 40.5" x 80'	Field Sheet - 81" x 65' Perimeter Sheet - 40.5" x 65'

### TYPICAL PHYSICAL PROPERTIES

Property	ASTM Test Method	Minimum ASTM Requirement	Mule-Hide Typical Physical Properties
Tolerance on nominal thickness, %	D751	+/-10	50, 60 & 80-mil nominal
Breaking Strength, lbf/in. (kN/m)	D751, Grab Method	200 (35) min.	300 (53) typical
Elongation at Break of fabric, %	D751	15 min.	25 typical
Thickness over scrim, in. (mm) 50-mil & 60 mil 80-mil	ASTM D4434 Optical Method (avg. of 3 areas)		0.016 (0.406) min. 0.025 (0.635) min.
Field Seam Strength, lbf/in. (kN/m) Seam tested in peel after welding	ASTM D1876	25 (4.4) min.	60 (10.5) typical
Tearing Strength, lbf (N) 8 by 8 in.	D751, B Tongue Tear	45 (200) min.	100 (445) typical
Low Temperature Bend, ° F (° C)	D2136	-40(-40) max.	-50 (-46) typical
Linear Dimensional Change (shrinkage) % After 6 hrs. at 176° F (80° C)	D1204	+/- 0.5 max.	-0.3 typical
Water Vapor Permeance, Perms	ASTM E96	0.10 max.	0.05 typical
Puncture resistance, lbf (N) (see supplemental section for additional puncture data)	FTM 101C Method 2031	250 (1110) min	280 (1245) typical 50-mil 320 (1423) typical 60-mil 380 (1690) typical 80-mil
Ozone Resistance, 100 pphm, 168 hrs.	D1149	No cracks	No cracks
Resistance to xenon-arc weathering Xenon-Arc, 6300 kJ/m <sup>2</sup> total radiant exposure, visual condition at 10X (ASTM D4434 light & spray cycle)	ASTM G155 0.35 W/ m <sup>2</sup> 63°C B.P.T 5000 hours	No cracks No crazing	No cracks No crazing
B.P.T is black panel temperature			

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## MULE-HIDE PRODUCTS CO., INC.

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**SUPPLEMENTAL APPROVALS AND TEST DATA**

1. Mule-Hide PVC membranes meet or exceeds the requirements of ASTM D 4434 Standard Specification for Poly Vinyl Chloride Sheet Roofing. Mule-Hide PVC membrane is classified as Type III as defined by ASTM D 4434.
2. Mule-Hide reinforced PVC was tested and passed for the following ASTM D 4434 puncture resistance tests:
  - a. ASTM D 5635-04, dynamic puncture resistance: 22.5 J (16.6 ft-lbf)
  - b. ASTM D 5602-98, static puncture resistance: 33 lbf (145N)
3. Radiative Properties for Energy Star®, Cool Roof Rating Council (CRRC) and LEED™

<b>TEST METHOD</b>		<b>WHITE PVC</b>	<b>TAN PVC</b>	<b>GRAY PVC</b>
<b>ENERGY STAR</b> initial solar reflectance	Solar Spectrum Reflectometer	0.87	N/A	N/A
ENERGY STAR solar reflectance after 3 years	Solar Spectrum Reflectometer (after cleaning)	0.61	N/A	N/A
<b>CRRC</b> initial solar reflectance	ASTM C1549	0.87	0.45	0.39
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.61	pending	pending
CRRC initial thermal emittance	ASTM C1371	0.95	0.86	0.87
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	pending	pending
<b>LEED</b> thermal emittance	ASTM E408	0.94	0.94	0.94
<b>SRI</b> (Solar Reflectance Index)	ASTM E1980	110	49	42

**SYSTEM BENEFITS**

- 1) Heat weldable
- 2) Seams are stronger than the membrane
- 3) Durable - scrim reinforcement offers superior resistance to impact, wind uplift
- 4) Superior resistance to UV
- 5) UL Class A , B and C, and FM classified assemblies available
- 6) Energy efficiency - white color reflects sunlight
- 7) Flexible - remains flexible to -40° F.
- 8) Chemical resistant

**INSTALLATION INSTRUCTIONS** (see complete application specs):

- 1) Approved insulation shall be mechanically attached with its largest dimensions perpendicular to the direction of the membrane seams.
- 2) Perimeter half sheets will be installed in an approved pattern.
- 3) Mechanical fasteners and plates are installed in the seams through the perimeter and full sheets, insulation and into the roof deck. Minimum penetrations for various decks are: metal - 1/2", wood - 1-1/2" and concrete - 1-1/4" to 1-1/2".
- 4) For hot air welding, the membrane shall be overlapped over the fasteners and hot air welded. All welded seams must be probed. All cut edges will be sealed with PVC Edge Sealant. All details will be done in accordance with Mule-Hide details.
- 5) On System Warranty requested projects, an authorized Mule-Hide representative shall inspect all completed work.

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**CAUTIONS AND WARNINGS**

Mule-Hide recommends wearing sunglasses that filter out ultraviolet light since the white surface is highly reflective to sunlight. White surfaces reflect heat and light. Roofing technicians should dress appropriately and wear sunscreen to protect skin from the sun.

Exercise caution when walking on wet membrane. Membranes may be slippery when wet. Smooth surfaces may promote slippery conditions due to frost and ice build-up. Exercise caution during cold conditions to prevent falls. Care must be exercised when working close to a roof edge when surrounding area is snow covered as the roof edge may not be clearly visible.

**STORAGE**

Use proper stacking procedures to ensure sufficient stability of the materials. Store PVC membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. PVC membrane that has been exposed to the weather or contaminated with dirt must be prepared with PVC Membrane Cleaner prior to hot air welding.

**TECHNICAL SERVICES**

Contact Mule-Hide Products Co., Inc. at 608/365-3111 for technical service information.

**DISCLAIMER**

The statements provided concerning the material shown are intended as a guide for material usage and are believed to be true and accurate. 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 make nor does it 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 except that it conforms to Mule-Hide's physical properties. Buyer and user accept the product under these conditions and assume the risk of any failure, any injury of 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 complaint or failure before repairs are made.