



Product Data Sheet

HELIX[®] MAX LOW-RISE ADHESIVE-DUAL TANK

August 2019

DESCRIPTION

Helix[®] Max Low-Rise Adhesive-Dual Tank (“Helix Max Adhesive”) is a low-rise, construction-grade, two-component polyurethane adhesive that is designed to bond Mule-Hide’s insulations and Fleece Back (TPO, PVC or PVC KEE) membranes to a variety of substrates. FM Approvals have been achieved over a variety of deck types and substrates.

PACKAGING

Self-contained tank set (A & B Components) includes guns, spray nozzles, 14” extension nozzle, and hoses in the A-side box.



BENEFITS AND SUPPLEMENTAL STATEMENTS

- Superior wind uplift resistance / FM approved
- Can be used for most re-roofing projects
- Quick, quiet, low-odor application
- Elongation of up to 150%
- Eliminates the need to pre-drill into concrete and gypsum decks
- Reduces labor by eliminating equipment maintenance and breakdowns
- VOC-compliant

APPLICATION

General Preparation

1. The surface to which adhesive is applied shall be dry, clean, free of fins, protrusions, sharp edges, loose and foreign materials, oil, and grease. Depressions greater than 1/4" shall be filled with Helix Max Adhesive or other approved patching material. All sharp projections shall be removed. Previously unexposed (shiny) asphalt must be primed with AeroWeb.
2. Seal gaps between the wall/penetration and concrete deck with Mule-Hide F5 Air & Vapor Barrier or other suitable material to avoid condensation issues and positive pressure from air infiltration.
3. Apply Helix Max Adhesive when the substrate and ambient temperatures are 25°F (-4°C) or above when spraying or extruding with heated or non-heated equipment. Dispense the adhesive between 300-800 psi depending on the equipment used. Consult Mule-Hide Technical Department for more details.
4. Fibrous cement decks must be investigated for their ability to retain liquid adhesive, as some types of fibrous cement may allow liquid adhesive to flow through the deck.
5. Static mixing tips for Helix Adhesive (or other manufacturers) and Helix Max Adhesive are not interchangeable, only use the nozzles provided in the packaging for application.

Substrate Compatibility					
Insulation/Underlayments		Roof Decks		Existing Roofing Materials	
Poly ISO 1 & 2	Yes	Concrete	Yes	Smooth BUR	Yes ⁵
StructoDek [®] High Density	Yes	Cellular Lt.Wt. Concrete	Yes ¹²	Gravel BUR	Yes ⁶
Expanded Polystyrene (EPS)	Yes ¹	NVS Lt.Wt. Concrete	Yes ¹²	Mineral Cap Sheet	Yes
Extruded Polystyrene (XPS)	Yes ²	Gypsum	Yes	Granular Modified-Bitumen	Yes
New Sprayed Foam	No ⁹	Cementitious Wood Fiber	Yes	Smooth Modified-Bitumen	Yes
Scarified SPF	No ⁹	Plywood/OSB	Yes	Coal Tar Pitch	Yes ⁷
DensDeck [®]	Yes	Painted Steel	Yes	Aluminum-Coated BUR	No ⁸
Securock [®]	Yes	Galvanized Steel	Yes ³	Acrylic-Coated SPF	No ⁹

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Oriented Strand Board	Yes	Acoustical Steel	Yes ⁴	Silicone-Coated SPF	No ⁹
Poly ISO 1HD	Yes	Wood Plank	Yes	Aged EPDM, Hypalon, TPO	Yes ¹⁰
				Unexposed (Shiny) Asphalt	Yes ¹¹

- Fleece Back membrane maybe installed directly over minimum 1.5-lb.-density EPS; however, to obtain UL & FM codes, an overlayment of StructoDek® High Density, DensDeck, Securock or Poly ISO insulation is required.
- For insulation attachment only.
- For new galvanized steel decks, power-washing is necessary to remove finishing oil residue if present.
- For acoustical steel decks, fill the flutes with fiberglass or other suitable fill insulation and tack in place with strips of duct tape 3' OC or other adhesive, prior to spraying the deck with Helix Max Adhesive.
- Existing Smooth BUR must be Type III or IV asphalt if the Fleece Back membrane is to be installed directly without insulation.
- A minimum of an approved cover board or insulation is required over properly prepared gravel BUR. **Fleece Back membrane cannot be installed directly over a gravel/slag surface.**
- An insulation providing the necessary R-value must be specified to prevent the coal tar pitch from softening. **Fleece Back membrane cannot be installed directly to coal tar pitch.**
- Aluminum coatings must be removed by power-washing or by physical abrasion prior to the application of Helix Max Adhesive. Adhesion tests are required to confirm sufficient preparation of the substrate.
- SPF roofing assemblies may be considered on a job by job basis. Contact Mule Hide Technical Department prior to bidding.
- Contact Mule-Hide for specific requirements on recover applications over aged EPDM, Hypalon, or TPO membrane.
- Requires AeroWeb for all applications.
- Cellular or air-entrained lightweight substrates are acceptable. Lightweight concrete containing expanded aggregate such as perlite or vermiculite is not acceptable. New lightweight concrete must be confirmed by the contractor to be thoroughly dry. Existing substrates will require adhesion tests.

Coverage Rates by Installation Application							
Container Size	Approx. Net Wt./Set	Substrate	Max Coverage Rates* (sq. ft./set)				
			Spray	Splatter**	4" OC	6" OC	12" OC
Dual Tanks (Set)	89 lbs.	Insulation Attachment	N/A	N/A	1000	1500	3000
Dual Tanks (Set)	89 lbs.	Membrane Attachment	N/A	2000**	1000	1500	3000

*The coverage rates published are estimates and not guaranteed. Application rates are based on ½" wide wet beads applied to a smooth, flat substrate. The adhesive will expand to 2"-3" wide and 1" above substrate. Coverage rates will decrease when used on irregular, rough or porous substrates. For example, installation over a properly prepared gravel surface BUR will consume approximately twice as much adhesive.

**Dual Tanks allow for Splatter application of Fleece Back membranes to smooth surfaces only, the coverage rate is calculated for the minimum required coverage.

Dual Tank Use Instructions

Note: When spraying the dispensing unit for the first time, or when starting a new kit, Mule-Hide recommends that users trigger the gun only a quarter to halfway open until the desired output and spray pattern is achieved. This allows complete control of the flow rate and spray pattern that best fits the application.

Note: Splatter application **is not** approved for applications over 5,000 feet above sea level. Contact Mule-Hide for all bead applications over 5,000 feet above sea level.

- Spray gloves, long sleeves, and protective glasses should be worn during setup and dispensing.
- For best results, use when material is between 70°F and 90°F. Clean grease, oil, dirt, and water off surfaces to be foamed.
- Before attaching the nozzle to the dispensing unit, apply a generous amount of petroleum jelly to the face. This will help to prevent contamination by cured foam or chemicals and will help to keep the sealing ports clean. Detailed instructions for attaching the nozzle are included in packaging for A-side tanks.
 - Note:** Nozzles for Helix Adhesive (or other manufacturers) and Helix Max Adhesive **are not** interchangeable, only use the nozzles provided in the packaging for application.
- Connect hoses to tanks prior to opening the A and B tank valves.
- Prior to use, shake both tanks for at least 15-20 seconds, holding the tanks by the handles and using an up and down "pumping" motion. When stopping for more than 2-hours re-shake the tanks.
- When spraying the dispensing unit for the first time, and with each new kit, dispense foam by squeezing the trigger only a quarter to halfway open until the desired output and spray pattern are achieved.
- When applying Helix Max Adhesive as a bead, the 14" extension nozzle is required and must be attached to the end of the gun nozzle tip before dispensing adhesive. Attach the 14" extension nozzle by rotating the extension tip clockwise onto the end of the gun nozzle tip.**
- When applying Helix Max Adhesive in a splatter application, only the gun nozzle should be used. Do not attach the 14" extension nozzle to the gun nozzle tip. Splatter application can be achieved by triggering the**

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gun from a distance of 2'-3' off the deck. Adhesive should be dispersed using a horizontal back and forth motion, achieving 50% coverage of the substrate at 3.75 lbs/sq.

9. Once the trigger is released, it **MUST BE REACTIVATED WITHIN 15 SECONDS** or a new nozzle must be installed. Failure to do this could result in chemical leakage, spills, or splashes which can ruin the dispensing unit and/or hoses.
10. After releasing the trigger, activate the trigger safety to prevent accidental discharge.
 - The dispensing unit face can be kept clean by using petroleum jelly
 - Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.
 - When storing or using adhesive in temperatures below 40°F, the adhesive internal temperature must be returned to 70°F prior to use. Placing adhesive in a heated area (70 - 90°F) for 4 hours should allow liquid adhesive to reach 70 - 90°F.
 - In colder temperatures, it is recommended to utilize heated blankets to ensure the tanks are kept warm while dispensing the product.
 - **When temperatures are in excess of 90°F (32°C), utilize white membrane or material to shield the drums from direct sunlight.**

Storage of tanks

1. Close tank valves.
2. Do not store at temperatures above 100°F or below 50°F.
3. The used nozzle should be removed and the dispensing unit should be cleaned with a splice wipe to help keep outlet ports clean and free from any dust, dirt, or chemicals that can affect the proper sealing of the nozzle. **ALWAYS** engage the trigger safety and close all supply valves during storage. Do not purge adhesive from hose.
4. Do not remove the hoses from tanks. Do not flush or clean hoses with air, water, or solvent. Removing and/or cleaning the hoses will compromise the foam.

Re-use of Dispensing Unit after Storage

1. Check the face of the dispensing unit to ensure outlet ports are clear and the face of the unit is free from dirt, chemicals, or other debris. If necessary, use a soft cloth or rag to remove any cured foam or chemicals from the face of the dispensing unit. The use of petroleum jelly is recommended to cover the face of the dispensing unit to prevent further contamination or if chemical is accidentally leaked into this area.
2. Attach a new or cleaned nozzle to the dispensing unit.
3. Shake both tanks for at least 15-20 seconds, holding the tanks by the handles and using an up and down "pumping" motion. When stopping for more than 2-hours re-shake the tanks.

Disposal Procedures

1. Eye protection and impervious gloves **MUST** be worn during disposal procedures.
2. **DO NOT dispose of, puncture, or incinerate cylinder tanks while under pressure.**
3. When the job is completed or tanks are empty, pressure must be released from the tanks.
4. With the tank valves open, trigger Dual Tank gun open 100%, discharging remaining adhesive, as well as pressure and propellant, into a lined waste container.
5. After cylinders are empty of all pressure and propellant, tanks must be vented. **CAUTION: tanks could still be under pressure.**
6. Close valves and release remaining pressure from hoses. Remove hoses, and with tank valve positioned **AWAY** from face and others, slowly reopen tank valve and allow excess chemical to drain into a lined waste container and allow pressure to completely vent.
CAUTION: All pressure **MUST** be vented 100%. Empty tanks could contain potential vapor toxicity hazard. Provide adequate ventilation or respiratory protection (consult SDS).
7. Once cylinder is empty and vented, carefully puncture the friable disc on the top of the cylinder. Cylinders should sit for 30 minutes prior to disposal.
8. **DISPOSE OF EMPTY CYLINDERS AND EXCESS CHEMICAL ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.**
9. For recycling information, check with local municipality.

Insulation Attachment

1. Dispense Helix Max Adhesive in beads at the appropriate coverage rate. For steel decks, beads of adhesive must run parallel with, and be on top of, all of the flutes.
2. Place insulation boards (maximum 4' x 4'), or cover boards (DensDeck Prime or Securock may be 4' x 8') into adhesive after allowing it to rise and develop "string/body".
3. String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure (lose tack) prior to setting insulation boards.
4. Designate one person to walk boards into place and then roll the boards between 5-7 minutes from the initial adhesive application. Boards may be temporarily weighted or relief-cut where necessary to keep the boards in constant contact with the adhesive until the adhesive cures.

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- At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of boards to ensure a tight bond is created and maximum contact is achieved.

Bead Spacing Requirements*				
Building Height	Perimeter Width	Bead Spacing		
		Field	Perimeter	Corner
0-25'	4 Feet	12" OC	6" OC	6" OC
26'-49'	8 Feet	12" OC	6" OC	6" OC
50'-74'	12 Feet	12" OC	6" OC	6" OC
75'-100'	16 Feet	12" OC	6" OC	6" OC
101' or greater	Contact Mule-Hide Technical Department			

*Bead spacing guidelines for 10, or 15-year, 55-mph warranties are listed below. Contact Mule-Hide's Technical Department regarding bead spacing for 20 and 30-year warranties and/or warranties with wind speeds higher than 55 mph.

Fleece Back Installation

Slide-in Method

- Unroll Fleece Back sheet and position. Fold the sheet back in half lengthwise (end-to-end).
- Dispense Helix Max Adhesive to the substrate.
 - For splatter applications, splatter adhesive to obtain a minimum of 50% coverage. Ensure end laps are protected from adhesive.
 - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
- Once "string time" occurs, gradually roll Fleece Back membrane into Helix Max Adhesive, checking for "string/body" every few feet. If membrane reaches adhesive that has NOT developed "string/body" stop rolling Fleece Back membrane into adhesive until string develops. As sheet is being installed, immediately start rolling the membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until Fleece Back sheet is fully installed.

Roll-in (Mod Bit) Method

- Unroll the Fleece Back sheet and position in place. Starting at one end of the membrane, using the roll core, carefully roll the membrane back up half way making sure you do not reposition the membrane. Leaving half the membrane laid out will help prevent this.
- Dispense Helix Max Adhesive to the substrate.
 - For splatter applications, splatter adhesive to obtain a minimum of 50% coverage. Ensure end laps are protected from adhesive.
 - For bead applications, apply at 4", 6", or 12" on center with a min. 1.5" wide foamed bead. Ensure end laps are protected from adhesive.
- Once "string time" occurs, gradually roll Fleece Back membrane into Helix Max Adhesive, checking for "string/body" every few feet. If membrane reaches adhesive that has NOT developed "string/body" stop rolling Fleece Back membrane into adhesive until string develops. As sheet is being installed, immediately start rolling the membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until Fleece Back sheet is fully installed.

PRECAUTIONS

- Helix Max Adhesive splatter application is NOT approved for adhering membrane to walls, or any insulation attachment.**
- Review the Safety Data Sheet for complete safety information prior to use.
- High-slope applications may require adhesive to be applied to the bottom of the insulation board to avoid running.
- Review the Safety Data Sheet for complete safety information prior to use.
- The foam produced is an organic material. It must be considered as combustible and may constitute a fire hazard. The foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with prefilters and solvent- resistant cartridges or supplied airline respirators while spraying. Proper safety training is essential for all persons involved in the installation process. If vapor is inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately
- Avoid contact with eyes. Safety glasses or goggles are required. If Helix Max Adhesive is splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long-sleeved shirts and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil. NOTE: Permeation-resistant gloves that meet ANSI/ISEA 105-2005 are required when handling the material or during application.
- Jobsite storage temperatures in excess of 90°F (32°C) may affect product shelf life. If components are stored at

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temperatures lower than 60°F (16°C), restore to room temperature prior to use. Do not allow Helix Max Adhesive to freeze.

- KEEP OUT OF THE REACH OF CHILDREN.

LEED Information	Dual Tanks
Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Tomball, TX
Solar Reflectance Index (SRI)	N/A

Base Component Property*	Part A (1) Polymeric Isocyanate	Part B (2) Polyols, Surfactants & Catalysts
Viscosity	400cps	400cps
Average Net Weight	9.88 lbs/gal	9.23 lbs/gal
Mixing Ratio by Volume	1:1 Ratio	1:1 Ratio
Packaging	59lbs. (26.8kg)	57 lbs (25.8 kg)
Shelf Life	1 Year	1 Year
Physical Property*	Test Method	Results
Elongation	ASTM D412	150%
Modulus @ 150% Elongation	ASTM D412	20 psi

* 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.

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.

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 at 800-786-1492.

DISCLAIMER

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