



# Product Data Sheet

## EPDM x-23 Low-VOC Bonding Adhesive

### PRODUCT DESCRIPTION

EPDM x-23 Low-VOC Bonding Adhesive is a high-strength, solvent-based contact adhesive that bonds EPDM membranes to various porous and non-porous substrates. This product meets the <250 g/l VOC content requirements of the OTC Model Rule for Single-Ply Roofing Adhesives.

**This product does not comply with the following California counties' VOC regulations:** Alameda, Contra Costa, El Dorado, Los Angeles, Marin, Napa, Orange, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Mateo, Santa Clara, Solano, Sonoma, and Tehama. These areas require the use of Low-VOC 1168 Bonding Adhesive.



### BASIC USES

EPDM x-23 Low-VOC Bonding Adhesive is used to bond EPDM membranes to polyisocyanurate insulation, structural and lightweight insulating concrete, APA non-fire treated plywood, oriented strand board, wood fiberboard, SECUROCK®, DensDeck® Prime, masonry, and various metal finishes. EPDM x-23 Low-VOC Bonding Adhesive is easily applied with a medium nap roller, creating a strong adhesive bond between the membrane and substrate.

### TYPICAL PHYSICAL PROPERTIES

Typical values*	
Base Material	Synthetic Rubber
Color	Yellow
Solids	21.1%
VOC:	250 g/l max
Flash Point	0° F (-17° C) Closed Cup
Brookfield Viscosity	3,100 Centipoises
Avg Net Weight	7.7 lbs. / gallon (0.925 kg/l)
Packaging	5 Gallon Pails
Shelf Life	1 Year

LEED Information	
Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
VOC Content	< 250 g/l

\*General properties. 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.

### PACKAGING

Packaged in 5 gallon pails

### BENEFITS & SUPPLEMENTAL STATEMENTS

- High strength adhesive with quick bonding characteristics
- Ease of application with a medium nap roller
- Provides excellent adhesion between EPDM membranes and a variety of substrates
- Faster flash-off improves contractor productivity
- Extended open time – ideal when working with large sheets of EPDM

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## CODE APPROVALS/COMPLIANCE

A variety of Factory Mutual Ratings and Underwriter Laboratory Classifications are available. Contact Mule-Hide Technical Department for additional information.

## COVERAGE RATES

Coverage for EPDM x-23 Low-VOC Bonding Adhesive is approximately 60 ft<sup>2</sup> (5.6 square m) per gallon (finished surface.) A 5-gallon paid should cover no more than 300 square feet (28 m<sup>2</sup> of finished area. This coverage rate is an average and may vary due to conditions on the job site. Porous wall substrates such as masonry block may require two coats of bonding adhesive. In these cases, allow the first coat of adhesive to flash off completely prior to applying the second coat of adhesive at the required coverage rate of 60 square feet per gallon.

## INSTALLATION TEMPERATURE

If adhesive is stored below freezing temperatures, restore to room temperature for a minimum of 24 hours prior to use. Keep adhesive warm (60°F to 90°F, 15°C to 32°C) for ease of application.

## INSTALLATION INSTRUCTIONS

### Surface Preparation

1. Unfold membrane, position on roof and allow to relax for 30 minutes or longer. Allowing membrane to relax will aid in a smoother appearance of the finished roofing surface. The surface, on or against which adhesive is to be applied, shall be clean, smooth, dry, free of fins, sharp edges, loose and foreign materials, oil and grease. Depressions greater than 1/4" (6 mm) should be feathered; using epoxy, mortar or other approved patching material. All sharp projections shall be removed by sweeping, blowing or vacuum cleaning.

### Mixing

1. **Stir EPDM x-23 Low-VOC Bonding Adhesive thoroughly once per day until all settled polymers are dispersed and the adhesive is a uniform yellow color. During mixing, scrape the sides and bottom of the pail until the adhesive is a uniform yellow color with no dark streaks. Keeping the adhesive warm, as well as using an air-operated mixing paddle, will aid in the mixing process.**

### Application

1. After thorough stirring (minimum 5 minutes), apply EPDM x-23 Low-VOC Bonding Adhesive to substrate and membrane using a 9" (228 mm) wide, 1/2" (13mm) medium nap roller. Application shall be continuous and uniform avoiding globs or puddles. The solvents in the EPDM x-23 Low-VOC Bonding Adhesive must be allowed to flash off until tacky but does not string or stick to a dry finger touch ('tack test'). Continually monitor the adhesive for 'flash off' after application. Install membrane after adhesive passes the tack test to avoid trapping solvents that can create blistering. Temperature, sun, shade and humidity can affect flash-off time.

Any coated area, which has been exposed to rain, should be allowed to dry and then recoated. **Do not apply adhesive to seam areas or use with taped products.**

2. Roll the membrane onto the adhesive-coated substrate, avoiding wrinkles. Immediately brush down the bonded portion of the sheet with a stiff-bristle push broom to achieve maximum contact. For wall applications, use a neoprene-type hand roller after brooming to ensure maximum contact. If blisters should occur due to trapped solvents, allow the solvent to naturally dissipate for four to five days, and then re-broom the membrane so it lays flat.

REVIEW CURRENT MULE-HIDE SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

# Product Data Sheet

EPDM X-23 LOW-VOC BONDING ADHESIVE

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## Precautions

1. Review the applicable Material Safety Data Sheet for complete safety information prior to use.
2. EPDM x-23 Low-VOC Bonding Adhesive must be stored in original, unopened containers at temperatures between 60°F (15°C) and 90°F (32°C). Jobsite storage in excess of 90°F (32°C) may affect product shelf life. Prolonged exposure to below freezing temperatures will cause the adhesive to thicken and solidify in the can. Should the Low-VOC Bonding Adhesive be stored below freezing temperatures, restore to room temperature for a minimum of 24 hours prior to use. The adhesive will perform as intended once restored to a liquid state. When temperatures are expected to be consistently below 40°F (4°C), a heated enclosure or hot box is required for storage. Keep adhesive warm (60°F to 90°F, 15°C to 32°C) for ease of application.
3. EPDM x-23 Low-VOC Bonding Adhesive is **EXTREMELY FLAMMABLE** - It contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or sparks. Do not smoke while applying. Do not use in a confined or unventilated area. Vapors are heavier than air and may travel along ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from material handling point and flashback. All containers should be grounded when material is transferred from one container to another. A red caution label is required when shipping. A fire extinguisher should be available. In case of fire, use water spray, foam, dry chemical or carbon dioxide. Do not use a solid stream of water because it can scatter and spread the fire.
4. Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately. During application, efforts must be made to prevent fumes from entering the building via air ventilation ducts. Do not place open containers or mix adhesive near fresh air intake units. When possible, shut down or seal off the closest units.
5. If swallowed, **DO NOT INDUCE VOMITING**. Call a physician immediately.
6. Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water. Contact physician if irritation persists. Note: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) are recommended to be worn when using this product to protect hands from irritating ingredients.
7. Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
8. Do not thin EPDM x-23 Low-VOC Bonding Adhesive. Thinning will affect performance. Excessively thick or gelled material should be discarded.
9. These materials are sensitive to ambient moisture; heat will accelerate the effect of moisture. Opened containers of Bonding Adhesive should be used within 48 hours. Adhesive will begin to thicken after this point, making it difficult and eventually impossible, to control adhesive thickness.
10. Adhesive must be allowed to flash off but not become overly dry. If membrane is mated with the substrate prior to the adhesive flashing off, blistering will occur. If membrane is mated with the substrate after the adhesive has over-dried, loose or un-adhered areas will occur. Thin application of adhesive increases the risk of over-drying.
11. Coverage rates are an average and may vary due to jobsite conditions.
12. **KEEP OUT OF REACH OF CHILDREN**

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## **STORAGE & HANDLING**

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## **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](http://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](http://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