SECTION 09

MULE-HIDE PVC
MATERIAL SAFETY DATA SHEETS (MSDS)

TABLE OF CONTENTS

Membrane **Name**
Mule-Hide PVC Membrane (0.050", 0.060", 0.080")..... MSDS 10-1205

Adhesives and Sealants
Universal Single-Ply Sealant..... MSDS 10-2105
Mule-Hide EPDM Water Cut-Off ..... MSDS 10-2110
Mule-Hide Thermoplastic One-Part Pourable Sealer..... MSDS 10-2205
Mule-Hide PVC Bonding Adhesive ..... MSDS 10-2315
Mule-Hide WBBA-2000 Bonding Adhesive..... MSDS 10-2505

Seaming
Mule-Hide PVC Membrane Cleaner..... MSDS 10-3110
Mule-Hide PVC Cut Edge Sealant ..... MSDS 10-3410

Flashings
Mule-Hide PVC Non-Reinforced Flashing..... MSDS 10-1205
Mule-Hide PVC Molded Sealant Pockets..... MSDS 10-1205
Mule-Hide PVC Pipe Seals ..... MSDS 10-1205
Mule-Hide PVC T-Joint Cover..... MSDS 10-1205
Mule-Hide PVC Universal Corners..... MSDS 10-1205

Fasteners
Mule-Hide 2.4" Barbed Seam Plates..... MSDS 10-5105
Mule-Hide 3" Metal Stress Plates..... MSDS 10-5105
Mule-Hide Drill Point Fasteners ..... MSDS 10-5105
Mule-Hide HD-14 Heavy Duty Fasteners..... MSDS 10-5105
Mule-Hide HD-15 Heavy Duty Fasteners ..... MSDS 10-5105

Accessories
Mule-Hide All Purpose Bar..... MSDS 10-5105
Mule-Hide Poly ISO 1 Roof Insulation..... MSDS 10-6210
Mule-Hide Poly ISO 2™ Roof Insulation..... MSDS 10-6215
Mule-Hide Poly ISO 1-HD (cover board)..... MSDS 10-6210
Georgia-Pacific Dens Deck Prime..... MSDS 10-6290
USF Securock Gypsum-Fiber Board..... MSDS 10-6292
Mule-Hide PVC Coated Metal ..... MSDS 10-1205
Mule-Hide PVC Walkway Pads..... MSDS 10-1205
HP Protection Mat ..... MSDS 10-1305

Please consult the Mule-Hide website for the most current information at www.mulehide.com

MULE-HIDE PVC
MATERIAL SAFETY DATA SHEETS (MSDS)

TABLE OF CONTENTS

Membrane **Name**

Mule-Hide PVC Reinforced Membrane 10-1205

Adhesives and Sealants

Universal Single-Ply Sealant..... 10-2105
Mule-Hide EPDM Water Cut-Off 10-2110
Mule-Hide Thermoplastic One-Part Pourable Sealer 10-2205
Mule-Hide Low VOC PVC Bonding Adhesive..... 10-2410
Mule-Hide WBBA-2000 Bonding Adhesive..... 10-2505

Seaming

Mule-Hide PVC Membrane Cleaner 10-3110
Mule-Hide PVC Cut Edge Sealant 10-3410

Flashings

Mule-Hide PVC Non-Reinforced Flashings..... 10-4120

Accessories

Mule-Hide Poly ISO 1 Roof Insulation 10-6210
Mule-Hide Poly ISO 2™ Roof Insulation..... 10-6215
Mule-Hide Poly ISO 1-HD (cover board)..... 10-6210
Georgia-Pacific Dens Deck Prime 10-6290
USF Securock Gypsum-Fiber Board 10-6292

Please consult the Mule-Hide website for the most current information at www.mulehide.com

For the most current version of this MSDS log onto http://www.mulehide.com and go to Products and Specs/MSDS.

Material Safety Data Sheet

MULE-HIDE PVC MEMBRANE **MSDS No. 10-1205**

Date of Preparation: 10/12/2010 Revision: 000

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide PVC Membrane
Chemical Formula: Mixture **Chemical Formula**: Roof and Waterproofing Membrane
Manufacturer: Carlisle Construction Materials Inc., 1285 Ritner Highway, Carlisle, PA 17013 Phone: 800-479-6832
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Drive, Beloit, WI 53511 Phone: 800-786-1492

Emergency Phone Number: CHEMTREC (USA) 800-424-9300

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt *or* % vol
PVC (chloroethylene polymer)	9002-86-2	>40
Antimony trioxide	1309-64-4	>2
Stabilizers (trade secret)		>5
Plasticizers (trade secret)		>10
Titanium dioxide	13463-67-7	>5

Hazardous Ingredients:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH

This product is considered to be a finished article as defined by 29 CFR 1910.1200 and is exempt from the requirements of the Hazard Communication standard. This product is nonhazardous as per 29 CFR 1910.1200.

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

HMIS
H 0
F 1
P 0
PPE†
†Sec. 8

Potential Health Effects

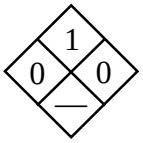
Primary Entry Routes: None
Target Organs: Not Applicable
Acute Effects
Inhalation: Inhalation of vapor from this product during heat welding may cause respiratory tract irritation.
Eye: Vapor from this product during heat welding may irritate eyes.
Skin: Exposure to hot surfaces during heat welding may cause thermal burns.
Ingestion: Ingestion difficult, no known health effects.
Carcinogenicity: None Known
Medical Conditions Aggravated by Long-Term Exposure: None Known
Chronic Effects: None Known

Section 4 - First Aid Measures

Inhalation: If breathing becomes difficult, remove person from heat welding area and get medical attention.
Eye Contact: If eye irritation continues after welding, flush eyes with water for 15 minutes
Skin Contact: If skin is burned from welding operation, cool with running water. Get medical attention if necessary.
Ingestion: Not Applicable
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: None
Special Precautions/Procedures: None

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: Above 329 °C
Flash Point Method: Setchkin
Burning Rate: Not Determined
Autoignition Temperature: >357 °C
LEL: Not Applicable
UEL: Not Applicable
Flammability Classification: Not flammable.
Extinguishing Media: Water spray, dry chemical, foam, or carbon dioxide.
Unusual Fire or Explosion Hazards: None
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide, hydrogen chloride and other organic compounds may be released in a fire.
Fire-Fighting Instructions: Standard procedures for Class A fires. Use self-contained breathing apparatus (SCBA) and protective clothing for structural fire fighting.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Handle as normal solid waste.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.1200).

Section 7 - Handling and Storage

Handling Precautions: Keep away from sparks and open flame.
Storage Requirements: This product may react with strong oxidizing agents and should not be stored near such materials. Best to store rolls in areas protected by automatic sprinklers. Store product below 60°C (140°F) to prevent roll sticking at installation
Regulatory Requirements: Not Applicable

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Provide adequate ventilation during heat welding.
Ventilation: Heat welding in an outdoor environment will normally provide adequate ventilation.
Administrative Controls: Assure that adequate ventilation is provided during heat welding.
Respiratory Protection: A respiratory protection program that meets OSHA 1910.134, ANSI Z88.2 and / or CSA Z94.4-93 requirements must be followed whenever workplace conditions warrant use of a respirator.
Protective Clothing/Equipment: Work boots and work clothing recommended. Sunglasses which filter out ultraviolet light are strongly recommended 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.
Safety Stations: Emergency eyewash stations or source of clean running water recommended in vicinity of project
Contaminated Equipment: Not Applicable
Comments: Never eat, drink, or smoke in work areas. Best to wash hands after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance and Odor: White-on-black sheet; moderate odor new. (white may be replaced by tan, gray, etc)
Odor Threshold(ppm): Not Determined
Vapor Pressure: Not Applicable
Vapor Density (Air=1): Not Applicable
Formula Weight: Not Applicable
Density:
Specific Gravity (H_2O=1, at 4 °C): 1.30 – 1.40
pH: Not Applicable

Water Solubility: Practically insoluble in water
Other Solubilities: Not Determined
Boiling Point(°C): Not Applicable
Freezing/Melting Point(°C): >120
Viscosity: Not Applicable
Refractive Index: Not Applicable
Surface Tension: Not Applicable
% Volatile: Not Determined
Evaporation Rate: Not Applicable

Section 10 - Stability and Reactivity

Stability: Stable.
Polymerization: Will not occur.
Chemical Incompatibilities: Any strong oxidizing agent.
Conditions to Avoid: Keep away from heat, sparks or open flame

Hazardous Decomposition Products: Gases or vapors such as carbon monoxide, carbon dioxide, hydrogen chloride or oxides of nitrogen, and other organic compounds may be released in a fire.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: None Known
Skin Effects: None Known

Acute Inhalation Effects: None Known
Acute Oral Effects: None Known
Chronic Effects: None Known
Carcinogenicity: No evidence
Mutagenicity: No evidence.
Teratogenicity: No evidence.

Section 12 - Ecological Information

Ecotoxicity: None Known
Environmental Fate: This product is not readily biodegradable
Environmental Degradation: Not Determined
Soil Absorption/Mobility: Not Determined

Section 13 - Disposal Considerations

Disposal: (1) Recycle / reprocess; (2) Incineration including energy recovery of waste material in a permitted facility in accordance with local, state or federal regulations; (3) Landfilling in a licensed facility in accordance with local, state or federal regulations
Disposal Regulatory Requirements: This product is not judged to be a hazardous waste by any local, state or federal regulation. This product is not listed in the U.S. federal hazardous waste regulations, 40 CFR261.33 paragraphs (e) or (f)
Container Cleaning and Disposal: Not Applicable

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

This product is not regulated by DOT, IMO, IATA, Canadian TDG and associated regulations ADR or RID.

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste Number: Not Listed
RCRA Hazardous Waste Classification: Not Classified
CERCLA Hazardous Substance: Not Listed
CERCLA Reportable Quantity (RQ): Not Listed
SARA 311/312 Codes: This product is not subject to SARA Title III requirements
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not Listed
OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance: Not Listed
State Regulations: California Proposition 65: WARNING: This product contains a chemical known to the state of California to cause cancer.

Section 16 - Other Information

Prepared By: Research & Development (BG)
Revision Notes: Original entry for 16-part format

Additional Hazard Rating Systems:

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Material Safety Data Sheet

Mule-Hide Universal Single Ply Sealant **MSDS No. 10-2105**

Date of Preparation: 9/15/11 Revision: 002

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Universal Single Ply Sealant
Chemical Formula: Silyl Terminated Polyether
CAS Number:
Other Designations: **General Use:** Moisture Cure Sealant
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr, Beloit, WI 53511 Phone: 800-786-1492
Manufacturer: Carlisle SynTec Inc., P.O. Box 7000, 1285 Ritner Hwy, Carlisle, PA, 17013-0925 (717) 245-7000
Chemtrec (800) 424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆
Warning – Causes mild skin irritation
Warning – causes eye irritation

HMIS
H 1
F 0
R 0
PPE†
†Sec. 8

Potential Health Effects

Routes of Entry: Dermal contact, Eye.
Acute Eye Contact: Direct contact can cause severe irritation.
Acute Skin Contact: Direct contact may cause slight irritation.
Skin Absorption: Not Toxic.
Acute Inhalation: Product is extremely low in volatility and, therefore, not likely to pose a problem from inhalation.
Acute Ingestion: May be harmful if ingested, not a likely route of entry.
Chronic Effects of Exposure: Repeated or prolonged direct contact to the skin may cause dermatitis.
Medical Conditions Aggravated by exposure: Pre-existing skin and eye disorders may be aggravated by direct contact to this product.
Carcinogenicity: There are not components in this product that are listed as a carcinogen by NTP, IARC, ACGIH or OSHA.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Additional Ingredients	**CAS Number**	**% wt**
Amino Silane	1760-24-3	1-5

Section 4 - First Aid Measures

First Aid for Eyes: Flush with large amounts of water for at least 15 minutes. Consult a physician if ill effects or irritation occurs.
First Aid for Skin: Clean product from affected area with Ethyl alcohol, then wash with soap and water.
First Aid for Inhalation: An unlikely route of entry. Remove to fresh air. Consult a physician.
First Aid for Ingestion: An unlikely route of entry. Consult a physician.

Section 5 - Fire-Fighting Measures

NFPA
0
1 0
—

Flash Point: Not Applicable
Flash Point Method: Not Applicable
Autoignition Temperature: Not Applicable
LEL: Not Applicable
UEL: Not Applicable
Flammability Classification: Not considered flammable.
Extinguishing Media: Carbon Dioxide (CO_2), water, dry chemical, foam
Unsuitable Extinguishing Media:
Unusual Fire or Explosion Hazards: None known.
Hazardous Decomposition Products: Thermal decomposition may release toxic fumes of carbon monoxide and/or carbon dioxide.

Fire-Fighting Procedures: Wear full protective clothing including helmet, self contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask and protective covering for exposed areas of the head.

Section 6 - Accidental Release Measures

Personal Precautions: Observe all personal protective equipment recommendations described in Sections 5 and 8.
Environmental Precautions: Disposal of collected product, residues and cleanup materials may be governmentally regulated. Observe all applicable local, state and federal waste management regulations.
Spill /Leak Procedures: Collect spill with absorbent material such as cardboard and place into a container approved for waste disposal.

Section 7 - Handling and Storage

Handling: Use personal protection recommended in section 8. Avoid eye, skin and clothing contact.
Storage: Store in a cool dry area (this product polymerizes when in contact with moisture.)

Section 8 - Exposure Controls / Personal Protection

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL TWA**		**STEL**	**IDLH**
Amino Silane	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

Exposure Guidelines: No established limits.
Engineering Controls: No specific controls are needed.
Personal Protective Equipment:

Eye Protection: Wear safety glasses or goggles to avoid eye contact.
Skin Protection: Wear impervious gloves such as vinyl to minimize contact with skin.
Respiratory Protection: Not required.
Work/Hygienic Practices: Avoid contact with eyes and skin. Wash thoroughly after handling and before eating or drinking.

Section 9 - Physical and Chemical Properties

Physical State: Solid (Paste)
Appearance and Odor: Mild ester odor
Odor Threshold: Not determined
Vapor Pressure: Not established
Vapor Density: > 1
Formula Weight:
Density: 13.35 LBS/GAL
Specific Gravity (H_2O=1, at 4 °C): > 1
pH: Not established

Water Solubility: NIL
Other Solubilities:
Boiling Point: Not established
Freezing/Melting Point: Not established
Viscosity: Greater than 800,000 cps at 77°F/25°C
Refractive Index:
Surface Tension:
% Volatile by Volume:
Evaporation Rate: Not applicable
Volatile Organic Content: 0 g/L
Flash Point: Not Applicable
Flash Point Method: Not Applicable
Autoignition Temperature: Not Applicable
LEL: Not Applicable
UEL: Not Applicable

Section 10 - Stability and Reactivity

Stability:. Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Chemical Incompatibilities: None known
Conditions to Avoid: None known
Hazardous Decomposition Products: None known

Section 11- Toxicological Information

Toxicity Data:

Information below is based on Amino Silane (refer to sections 2 and 3).

Oral: Result: LD50 > 2,000 mg/kg. Remark: Very low order of toxicity.
Skin Absorbtion: Result: LD50 > 2,000 mg/kg. Remark: Very low order of toxicity.
Skin /Direct Contact: Result: Slight irritation.
Eye Direct Contact: Result: Severe irriation. Remark: Causes corneal injury.
Exposure Limits: Not Applicable.
Sensitization: No.
Reproductive Toxicity: No.
Mutagencity: No.
Teratogenicity: No.
Synergistic Products: None.

Section 12 - Ecological Information

No known applicable information.

Section 13 - Disposal Considerations

Dispose in accordance with all local, state, and federal regulations.

Section 14 - Transport Information

Special Shipping Information: None.
DOT: Not regulated.
TDG: Not available
PIN: Not available.

Section 15 - Regulatory Information

OSHA 29 CFR 1910-1200: Irritant
TSCA: All components of this product are listed on TSCA inventory.
CERCLA Reportable Quantity: Not applicable.
SARA Title III:
Section 302 Extremely Hazardous Substances: None
Section 304: Not Applicable.
Section 311/312: Immediate (acute) health hazard.
Section 313: None.
RCRA: Refer to section 13.
California Proposition 65: This product contains no levels of listed substances which the state of California has found to cause cancer, birth defects, or other reproductive harm.
WHMS Classification: D2B.

Section 16 - Other Information

Prepared By: Research and Development
Revision Notes: General Review

Additional Hazard Rating Systems:

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Material Safety Data Sheet

Mule-Hide WATER CUT-OFF MASTIC **MSDS No. 10-2110**

Date of Preparation: 03/21/11 Revision: 023

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide WATER CUT-OFF MASTIC
Chemical Formula: Mixture **General Use**: Elastomeric Sealer
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr, Beloit, WI 53511 Phone: 800-786-1492
Manufacturer: Carlisle SynTec, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-479-6832
24 hour Emergency Phone Number: CHEMTREC (USA) 800-424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Danger – Highly flammable liquid and vapor
Warning – Causes skin irritation
Warning – Causes eye irritation
Warning – May be harmful if swallowed and enters airways
Warning – May cause an allergic skin reaction
Warning – May cause drowsiness and dizziness

HMIS
H 1
F 4
R 0
PPE†
†Sec. 8

Potential Health Effects

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs:
Acute Effects
Inhalation: nose and throat irritation on short-term exposure to liquid or vapor.
Eye: irritation on short-term exposure to liquid or vapor
Skin: irritation on short-term exposure to liquid or vapor
Ingestion: irritation of gastrointestinal tract
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Pre-existing eye, skin, and pulmonary disorders may be aggravated by exposure to this product. Respiratory symptoms associated with pre-existing lung disorders and pre-existing heart disorders may be aggravated by exposure to this material.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, convulsions, and loss of consciousness. Anorexia and nervousness may persist for several months following acute overexposure. Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged, repeated contact. Dermatitis and defatting of the skin. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Aliphatic Petroleum Distillate	64742-89-8	10-30
Amorphous Silica	7631-86-9	1-5
Additional Ingredients	**CAS Number**	**% wt**
Isobutylene-Isoprene Copolymer	9010-85-9	
Polybutene Homopolymer	9003-29-6	
Hydrous Clay	12174-11-7	
Paraffinic Oil	64742-01-4	
Calcium Carbonate	1317-65-3	

Section 4 - First Aid Measures

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention immediately.
Eye Contact: Immediately flush eyes with running water for at least 15 minutes. Get medical attention.
Skin Contact: Immediately flush skin with running water and remove contaminated clothing. Wash exposed area with soap and water. Get medical attention.
Ingestion: Do not induce vomiting. Get medical attention immediately.
Special Precautions/Procedures: Whenever possible, remove the worker form the source of contamination.

Section 5 - Fire-Fighting Measures

Flash Point: 40 °F (4 °C)
Flash Point Method: TCC
Autoignition Temperature: 480.4 °F (249 °C)
LEL: 0.9% v/v
UEL: 7% v/v

NFPA

Flammability Classification: Division 2. Ignition can occur when this product is exposed to heat, sparks, or flame.
Extinguishing Media: In case of fire, use dry chemical, carbon dioxide, or foam. Water may not be effective as an extinguishing agent. Water fog or spray may be used to provide a smothering effect on fire and to cool fire-exposed container and surrounding combustibles. Do not use a solid stream of water because it can scatter and spread the fire.
Unusual Fire or Explosion Hazards: Flammable. Store and use away from all sources of heat, flame, or sparks. DO NOT smoke while applying. 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 location distant from material handling point and flash back. All containers should be grounded when material is transferred.
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide, carbon dioxide, or aldehyes may be released in a fire.
Fire-Fighting Instructions: This product contains solvents that are dangerous fire and explosion hazards when exposed to heat or flame. Fire fighters should wear self-contained breathing apparatus and full protective clothing with full-face pieces operated in the positive pressure demand mode.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Remove all sources of ignition. Avoid breathing vapors. Use self-contained breathing apparatus in enclosed area. Ventilate area. Contain and remove with inert absorbent materials and non-sparking tools.
Large Spills
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Cleanup: Clean-up spill as soon as possible. Collect any excess material with absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal. Comply with all laws and regulations.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Use away from all sources of heat, flame, or sparks. Do not smoke while using. Handling equipment must be grounded to prevent sparking. Handle with non-sparking tools. Wash with soap and water before eating or drinking. Launder contaminated clothing. KEEP OUT OF REACH OF CHILDREN.
Storage Requirements: Keep containers cool, dry, and store away from all sources of heat, flame, and sparks. Keep containers tightly closed and store with adequate ventilation. Do not pressurize, cut, weld, or grind the containers or empty containers which may contain residual product and solvent vapors that may ignite explosively.

Section 8 - Exposure Controls / Personal Protection

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Aliphatic Petroleum Distillate	300 ppm	400 ppm	300 ppm	none estab.	350 ppm	none estab.	none estab.
Amorphous Silica	6.0mg/m^3 (total dust)	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

Engineering Controls: Do not use in enclosed areas without proper explosion-proof ventilation. General and local exhaust ventilation must be sufficient to control vapor concentrations and keep the vapor concentration below 300 ppm.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Respiratory Protection: A NIOSH approved respirator must be used if vapor concentration is 300 ppm or above.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses or goggles recommended. Wear industrial boots to protect feet from contact with sealant. Impervious clothing is recommended to protect skin from contact with sealant. Protective skin creams or emollients useful.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Gray viscous liquid with mild solvent odor
Odor Threshold(ppm): Not available
Vapor Pressure: 45 mm Hg at 25 °C(77°F)
Vapor Density (Air=1): 3.9
Density: 9.98 – 10.82 lbs./gal. (calculated)
Specific Gravity (H_2O=1, at 4°C/39°F): 1.20-1.30
pH: N/A

Water Solubility: 0.5
Other Solubilities:
Boiling Point(°C): 115-140 (239 - 284°F)
Freezing/Melting Point(°C): -18 (-0.4°F)
% Volatile: 10-20
Evaporation Rate: 2.0
VOC: 250 gms. / l.
Flash Point: 40 °F (4 °C)
Flash Point Method: TCC
Autoignition Temperature: 480.4 °F (249 °C)
LEL: 0.9% v/v
UEL: 7% v/v

Section 10 - Stability and Reactivity

Stability: Stable.
Possibility of hazardous reactions: Will not occur.
Chemical Incompatibilities: Strong oxidizing agents, acids, bases.
Conditions to Avoid: Heat, sparks, and flames; ignition sources.
Hazardous Decomposition Products: Toxic gases or vapors such as carbon monoxide, carbon dioxide, or aldehydes may be released in a fire.

Section 11- Toxicological Information

Toxicity Data:

Acute Inhalation Effects: Product toxicity has not been determined.
Acute Oral Effects: Product toxicity has not been determined.
The following is component data:
Aliphatic Petroleum Distillates - Rat, oral, LD_{50}: >5000mg/kg
Amorphous Silica - Rat, oral, LD_{50}: 3160mg/kg
Carcinogenicity: Not listed in IARC or NTP.
Mutagenicity: No evidence
Teratogenicity: No evidence

Section 12 - Ecological Information

This product has not been tested. No data available.

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: flammable liquid label required for 5 gallon pails only
Special Provisions (172.102): 149,B52,IB2

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.173
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5 L
b) Cargo Aircraft Only: 60 L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: N/A

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261.31): Not classified
CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112: Not listed
SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

State Regulations:

Massachusetts Hazardous Substance Codes: Amorphous Silica 7631-86-9 2,4,5,F5
Calcium Carbonate 1317-65-3 4

Minnesota Hazardous Substance: Amorphous Silica Codes: ANOR Carcinogen: Yes
Calcium Carbonate Codes: A Carcinogen: No

Pennsylvania Hazardous Substance Code: Amorphous Silica 7631-86-9 Code: None
Calcium Carbonate 1317-65-3 Code: None

Canadian WHMIS Classification: Class: B
Division 2

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: General Revision.

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Material Safety Data Sheet

MULE-HIDE THERMOPLASTIC ONE-PART POURABLE SEALER **MSDS No. 10-2205**

Date of Preparation: 3/12/12 Revision: 007

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: MULE-HIDE THERMOPLASTIC ONE-PART POURABLE SEALER
Chemical Formula: Mixture **General Use:** Moisture Cure Sealant
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Drive, Beloit, WI 53511 Phone: 800-786-1492
Manufacturer: Carlisle SynTec, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-4SYNTEC
Emergency Phone Number: CHEMTREC (USA) 800-424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Warning – Causes mild skin irritation
Warning – Causes eye irritation

HMIS	
H	1
F	0
R	1
PPE†	
†Sec. 8	

Potential Health Effects

Primary Entry Routes: Skin contact, skin absorption, eye contact.
Target Organs:
Acute Effects
Inhalation: Product is extremely low in volatility and therefore not likely to pose a problem from inhalation.
Eye: Direct contact can cause severe irritation.
Skin: Direct contact may cause slight irritation.
Ingestion: May be harmful if ingested.
Carcinogenicity: IARC, NTP, ACGIH and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Pre-existing skin and eye disorders may be aggravated by exposure to this product.
Chronic Effects: Repeated or prolonged direct contact to the eyes may cause chemical burns. Repeated or prolonged direct contact to the skin may cause dermatitis.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Additional Ingredients	**CAS Number**	**% wt**
Amino Silane	1760-24-3	Proprietary

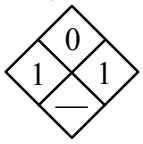
Section 4 - First Aid Measures

Inhalation: If irritation, headache, nausea or drowsiness occurs, remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention immediately.
Eye Contact: Immediately flush eyes with running water for at least 15 minutes. Get medical attention.
Skin Contact: Clean affected area with ethyl alcohol; then wash with soap and water.
Ingestion: An unlikely route of entry. Consult a physician.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians:
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

Flash Point: N/A
Flash Point Method: N/A
Burning Rate:
Autoignition Temperature: N/A
LEL: N/A
UEL: N/A

NFPA



Flammability Classification: Not flammable.
Extinguishing Media: In case of fire, use water spray, foam, CO_2 and dry chemical.
Unusual Fire or Explosion Hazards: None. This product is not considered flammable.
Sensitivity to Impact – Not applicable.
Hazardous Combustion Products: Thermal decomposition may produce toxic fumes of carbon monoxide and/or carbon dioxide.
Fire-Fighting Instructions: Fire fighters should wear self-contained breathing apparatus and full protective clothing with a full-face piece operated in the positive pressure demand mode.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures:
Small Spills: For minor spill, collect with an absorbent material and dispose of in accordance to governmental regulations.
Large Spills: Contain large spill by building a dike with absorbent material. Collect remaining material and place the material in a container approved for waste disposal.
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Cleanup:
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Use personal protection recommended in Section 8. Avoid eye, skin and clothing contact. Wash with soap and water before eating, drinking, or smoking. KEEP OUT OF REACH OF CHIDLREN. Clean equipment as soon as possible after use.
Storage Requirements: Store in cool, dry place (60-80°F) away from moisture or incompatible materials. Keep container tightly closed when not in use. Do not freeze. Store away from heat, sparks and flame.

Section 8 - Exposure Controls / Personal Protection

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Amino Silane	N/A .	N/A	N/A	N/A	N/A	N/A.	none estab.

Engineering Controls: Do not use in enclosed areas without proper ventilation.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Administrative Controls:
Respiratory Protection: Not ordinarily required. Use NIOSH or MSHA approved respirator as appropriate.
Protective Clothing/Equipment: Vinyl or permeation resistant gloves recommend. Wear safety glasses or goggles to avoid eye contact; industrial shoes to protect feet from sealant contact and long sleeves, long trousers to protect skin from sealant contact. Avoid prolonged or repeated contact with skin. Ash thoroughly with soap and water after use.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Viscous white liquid, mild ester odor until cured-no odor when cured.
Odor Threshold(ppm): N/A
Vapor Pressure: Not established.
Vapor Density (Air=1): >1
Density: 11.9 lbs/gal.
Specific Gravity (H_2O=1, at 4 °C): Heavier than water.
pH: Not established.

Water Solubility: Negligible
Other Solubilities:
Boiling Point (°C): Not established.
Freezing/Melting Point (°C): Not established.
Viscosity: 30,000 cps.
% Volatile: <1%
Evaporation Rate: N/A
Flash Point: N/A
Flash Point Method: N/A
Burning Rate:
Autoignition Temperature: N/A
LEL: N/A
UEL: N/A

Section 10 - Stability and Reactivity

Stability: Considered stable.
Possibility of Hazardous Reactions: Will not occur.
Chemical Incompatibilities: None known.
Conditions to Avoid: None known.
Hazardous Decomposition Products: None known.

Section 11- Toxicological Information

Toxicity Data:*

Eye Effects: Severe irritation. May cause corneal injury.

Skin Effects: LD_{50} >2,000 mg/kg

Acute Inhalation Effects:
Human, inhalation, LC_{50}; Not acutely toxic

Acute Oral Effects:
Rat, oral, LD_{50}: > 2,000 mg/kg
Chronic Effects:
Carcinogenicity: No evidence
Mutagenicity: No evidence
Teratogenicity: No evidence

Section 12 - Ecological Information

No known applicable information.

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Special Shipping Information:
None
DOT: Not regulated.

Section 15 - Regulatory Information

EPA Regulations:
TSCA – All components of this product are listed on TSCA Inventory.
RCRA Hazardous Waste Number: Not listed.
RCRA Hazardous Waste Classification: Not classified
CERCLA Reportable Quantity (RQ): Not applicable.
SARA 311/312 Codes: Immediate (acute) health hazard.
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed.

OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance (29CFR 1910.-1200) - Irritant
State Regulations: California Proposition 65: This product does not contain any chemicals currently on the California list of known Carcinogens and Reproductive Toxins.
WHIMS –D2B

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Changed name from Thermoplastics One-Part Pourable Sealer to White One-Part Pourable Sealer to better describe product.

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Material Safety Data Sheet

Mule-Hide PVC BONDING ADHESIVE **MSDS 10-2315**

Date of Preparation: 09/15/2008

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide PVC Bonding Adhesive
Chemical Formula: Nitrile Adhesive Mixture **General Use:** Contact Bonding Adhesive
Supplier: Mule-Hide Products Co., Inc 1195 Prince Hall Dr, Beloit, WI 53511, Phone: 800-786-1492
Manufacturer: Carlisle SynTec Incorporated, 1285 Ritner Highway, Carlisle, PA, 17013, Phone: 800-479-6832
Emergency Phone Number: CHEMTREC(USA): 800-424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Danger – Highly flammable liquid and vapor
Warning – Causes skin irritation
Warning – Causes serious eye irritation
Danger – May be fatal if swallowed and enters airways
Danger – May damage fertility or the unborn child
Warning – May cause an allergic skin reaction
Warning – Suspected of causing genetic defects (skin)
Warning – May cause drowsiness and dizziness
Warning – May cause damage to organs (liver, kidney, ear) through prolonged or repeated exposure

HMIS	
H	1
F	4
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Emergency and Hazards Overview:

Mixture contains flammable components and the vapors may ignite explosively. Vapors are heavier than air and may travel to distant sources of ignition and flash back. Harmful if swallowed or inhaled. Overexposure to vapors may cause dizziness, headache or central nervous depression. May cause irritation to the eyes, skin and respiratory tract.

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, and ingestion.
Acute Effects
Inhalation: May cause irritation of the nose, throat and respiratory tract. Excessive inhalation may result in headache, dizziness, fatigue, nausea, loss of consciousness, and even death.
Eye: May cause eye irritation on short-term exposure to liquid or vapor.
Skin: May cause skin irritation on short-term exposure to liquid or vapor. Solvents may be absorbed through the skin in toxic amounts.
Ingestion: Ingestion may cause symptoms similar to those of inhalation. The oral toxicity is estimated to be low, therefore not expected to be harmful in small amounts. Aspiration of material into lungs can cause chemical pneumonitis, which can be fatal.
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Respiratory symptoms associated with pre-existing lung disorders and pre-existing heart disorders may be aggravated by exposure to this material. Prolonged skin contact with this product may defat skin leading to irritation or dermatitis resulting in itching, redness and rash.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea and loss of consciousness. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Chronic exposure may cause reversible kidney and liver injury.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Methyl Ethyl Ketone	78-93-3	30 – 60
Toluene	108-88-3	15 - 40
Additional Ingredients	**CAS Number**	**% wt**

Section 4 - First Aid Measures

Inhalation: Move victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention immediately.
Eye Contact: Immediately flush eyes with running water for at least 15 minutes. Get medical attention.
Skin Contact: Immediately flush skin with running water and remove contaminated clothing. Wash exposed area with soap and water. Get medical attention.
Ingestion: DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Note to Physicians: This product contains methyl ethyl ketone (MEK) and toluene.
Special Precautions/Procedures: Whenever possible, remove the victim from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA

Flash Point: 23.3°C (74°F)
Flash Point Method: SETA
Autoignition Temperature: 516°C (961°F)
LEL: 2.0% by volume
UEL: 11.5% by volume
Flammability Classification: Division 2
Extinguishing Media: In case of fire, use dry chemical, carbon dioxide, or foam. Water may not be effective as an extinguishing agent. Water fog or spray may be used to provide a smothering effect on fire and to cool fire-exposed containers and surrounding combustibles. Do not use a solid stream of water because it can scatter and spread the fire.
Unusual Fire or Explosion Hazards: Extremely flammable. Store and use away from all sources of heat, flame, or sparks. Do not smoke while applying. 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 flash back. All containers should be grounded when material is transferred.
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide or carbon dioxide, various hydrocarbons, nitrogen compounds, and hydrogen cyanide may be released in a fire.
Fire-Fighting Instructions: This product contains solvents that are dangerous fire and explosion hazards when exposed to heat or flame. Fire fighters should wear a self-contained breathing apparatus and full protective clothing with a full-face piece operated in the positive-pressure demand mode.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full-face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Remove all sources of ignition. Avoid breathing vapors. Use self-contained breathing apparatus in enclosed area. Ventilate area. Contain and remove with inert absorbent materials and non-sparking tools.
Personnel Safeguards: Immediately evacuate all non-essential personnel to safe areas. Emergency responders should wear proper protective gear before entering the affected area. Observe all precautions noted above.
Regulatory Notifications: Waste of this product is defined as hazardous according to U.S. EPA. Spill reporting requirements and reportable quantities vary by region. Consult all applicable state and local regulations.
Containment and Cleanup: Remove all sources of ignition. Do not use metal shovels or other tools that could create sparks. Prevent liquids from entering sewers, drains or waterways by diking with sand or earth. Absorb with vermiculite or other absorbent material and remove for disposal.

Section 7 - Handling and Storage

Handling Precautions: Use away from all sources of heat, flame, or sparks. Do not smoke while using. Handling equipment must be grounded to prevent sparking. Handle with non-sparking tools. Wash with soap and water before eating or drinking. Launder contaminated clothing. KEEP OUT OF REACH OF CHILDREN.
Storage Requirements: Keep containers cool, dry, and store away from all sources of heat, flame, and sparks. Keep containers tightly closed and store with adequate ventilation. Do not pressurize, cut, weld, or grind the containers or empty containers that may contain residual product and solvent vapors that may ignite explosively.

Section 8 – Exposure Controls/Personal Protection

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Methyl Ethyl Ketone	200 ppm	300 ppm	200 ppm	300 ppm	None estab.	None estab.	3000 ppm
Toluene	200 ppm	150 ppm	20 ppm	none estab.	100 ppm	150 ppm	500 ppm

Engineering Controls: Do not use in enclosed areas without proper explosion-proof ventilation. General and local exhaust ventilation must be sufficient to control vapor concentrations and keep the PEL below TLV/TWA. Use explosion proof ventilation equipment. Take care not to draw vapors into non-explosion proof or spark generating equipment.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Respiratory Protection: Provide adequate ventilation to maintain vapors below TLV/TWA. If vapor levels are exceeded, use NIOSH approved respirator, both during and immediately after application, until vapor levels are below limits.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) REQUIRED. Protective glasses or goggles recommended. Industrial boots to protect feet from adhesive contact. Long sleeves, long trousers to protect skin from adhesive contact. Protective skin creams or emollients useful.
Safety Stations: Source of clean water should be available in the work area for flushing skin and eyes.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. KEEP OUT OF REACH OF CHILDREN!

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Pale yellow liquid with strong ketone odor.
Odor Threshold: Not available
Vapor Pressure: 70.0mm Hg at 20°C (77°F)
Vapor Density (Air=1): 2.4
Specific Gravity (H_2O=1, at 4°C/39°F): 0.883
pH: N/A

Water Solubility: Negligible
Boiling Point: 79.6°C (175°F)
Freezing/Melting Point: 85.9°C (186°F)
% Volatile: 70-80
Evaporation Rate: 3.8 (nBuAc=1)
VOC: 600 – 700 gpl
Flash Point: 23.3°C (74°F)
Flash Point Method: SETA
Autoignition Temperature: 516°C (961°F)
LEL: 2.0% by volume
UEL: 11.5% by volume

Section 10 - Stability and Reactivity

Stability: Stable under normal conditions.
Possibility of Hazardous Reactions: Will not occur.
Chemical Incompatibilities: Strong oxidizing agents, strong acids, or bases, alkali metals and halogens.
Conditions to Avoid: Heat, sparks, flames and other sources of ignition.
Hazardous Decomposition Products: Toxic gases or vapors such as carbon monoxide and carbon dioxide, may be released in a fire. Contact with strong oxidizing agents may cause fire and explosions.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Irritating

Skin Effects: Irritating

Acute Inhalation Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rat, inhalation, LC_{50}: > 8000 ppm / 8 hr
Toluene: Rat > 26,700 ppm 1 hr; Mouse 400 ppm 24 hr

Acute Oral Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rat, oral, LD_{50}: 2.9 gm/kg
Toluene: Rat 5,000 mg/kg

Acute Dermal Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rabbit, dermal, LD_{50}: > 5 mL/kg

Chronic Effects: May cause skin sensitization in some people.
Carcinogenicity: Not listed in IARC or NTP
Mutagenicity: Some evidence in animal exposure to Toluene.
Teratogenicity: Some evidence in animal exposure to Toluene.
Reproductive Toxicity: Effects have been observed in rats exposed to >1000 ppm MEK vapors.

Section 12 - Ecological Information

Ecotoxicity: Not known
Environmental Fate: Not known
Environmental Degradation: Not known
Soil Absorption/Mobility: Not known

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.
Disposal Regulatory Requirements: Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal.
Container Cleaning and Disposal: Dispose of waste in accordance with all applicable regulations. Waste which results from the clean up of spilled product, absorbed by a noncombustible absorbing media, would not be considered a hazardous waste once the methyl ethyl ketone and toluene have evaporated.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives, 3, UN 1133, PGII
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: red caution label required
Special Provisions (172.102): 149, B52, IB2, T4, TP1, TP8

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.173
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: ---

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste Number (40 CFR 261.33): Methyl ethyl ketone, CAS #78-93-3, RCRA Code U159

RCRA Hazardous Waste Classification (40 CFR 261.31): F005 (methyl ethyl ketone) and F005 (Toluene).

RCRA Groundwater List:

Chemical Name	CAS #	Methods	PQL
Methyl ethyl ketone	78-93-3	8015, 8240	10, 100

CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112: Methyl ethyl ketone, 78-93-3, RQ 5000 lb
Toluene 1,000 lb (454.5 kg)

SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Methyl Ethyl Ketone, CAS#78-93-3, 30 – 60%

Toluene, CAS#108-88-3, 15– 40%

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:
Clean Water Act Priority Pollutants: Toluene is listed as a priority pollutant. RQ: 1,000 lb (454.5 kg)

Clean Water Act Hazardous Substances: none listed

Clean Air Act SOCMI Chemicals: Methyl ethyl ketone, CAS #78-93-3, Toluene, CAS #108-88-3

Clean Air Act Hazardous Air Pollutants: Methyl ethyl ketone, CAS #78-93-3, Toluene, CAS 108-88-3

Marine Pollutants: none listed

OSHA, IARC, NTP Carcinogens: none listed

State Regulations:

California Proposition 65 Chemicals: This product contains the following chemical(s) known to the state of California to cause birth defects or other reproductive harm: Toluene.

Delaware Air Quality Management List: Methyl ethyl ketone CAS #78-93-3 DRQ: 5000 State? No
Toluene CAS #108-88-3 DRQ: 1000 State? Yes

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Co de
Methyl ethyl ketone	78-93-3	2, 4, 5, 6, F8, F9
Toluene 1	08-88-3	2 , 4, 5, 6, F7, F8

Michigan Critical Materials Register: Toluene 108-88-3 Report: -- Class: --

Minnesota Hazardous Substances List:

Chemical Name	CAS #	Codes	Hazards	Carcinogen
Methyl ethyl ketone	78-93-3	ANO	- -	No
Toluene: 1	08-88-3	ANO	skin	No

New Jersey RTK Hazardous Substance List:

Chemical Name	CAS #	Substance #	DOT #	TPQ	EHS
Methyl ethyl ketone	78-93-3 1	258 1	193	-	-
Toluene: 1	08-88-3	1866 1	294	---	

New York List of Hazardous Substances:

Chemical Name	CAS #	RQ Air	RQ Land	Note
Methyl ethyl ketone	78-93-3 5	000 1	-	-
Toluene 1	08-88-3	1000 1	-	-

Pennsylvania Hazardous Substances List:

Chemical Name	CAS #	Co de
2-Butanone	78-93-3	E
Methyl benzene	108-88-3	E

Code E = Environmental hazard

Washington Permissible Exposure Limits for Air Contaminants:

Chemical Name	CAS #	TWA Ppm	TWA mg	STEL ppm	STEL mg	Ceiling ppm	Ceiling mg	Skin
Methyl ethyl ketone	78-93-3	200 5	90 3	00 8	85 -	-	--	--
Toluene	108-88-3	100 3	75 1	50 5	60 -	-	--	--

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Section 8- Revised limits for Methyl Ethyl Ketone and Toluene.

Additional Hazard Rating Systems:

Disclaimer: The information contained in this document is based upon data that was supplied to Mule-Hide by other companies & organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

For the most current version of this MSDS log onto http://www.mulehide.com and go to Products and Specs/MSDS.

Material Safety Data Sheet

LOW VOC PVC BONDING ADHESIVE **MSDS No. 10-2410**

Date of Preparation: 01/03/11 Revision: 001

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Low VOC PVC Bonding Adhesive
Chemical Formula: Nitrile Adhesive Mixture **General Use:** Contact Bonding Adhesive
Manufacturer: Carlisle SynTec, 1285 Ritner Highway, Carlisle, PA, 17013, Phone: 800-479-6832
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Drive, Beloit, WI 53511 Phone: 800-786-1492
Emergency Phone Number: CHEMTREC(USA): 800-424-9300

Section 2 – Hazards Information

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Danger – Highly flammable liquid and vapor
Warning – Causes skin irritation
Warning – Causes serious eye irritation
Danger – May be fatal if swallowed and enters airways
Danger – May damage fertility or the unborn child
Warning – May cause an allergic skin reaction
Warning – Suspected of causing genetic defects (skin)
Warning – May cause drowsiness and dizziness
Warning – May cause damage to organs (liver, kidney, ear) through prolonged or repeated exposure

HMIS	
H	1
F	4
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Emergency and Hazards Overview:

Mixture contains flammable components and the vapors may ignite explosively. Vapors are heavier than air and may travel to distant sources of ignition and flash back. Harmful if swallowed or inhaled. Overexposure to vapors may cause dizziness, headache or central nervous depression. May cause irritation to the eyes, skin and respiratory tract.

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, and ingestion.
Acute Effects
Inhalation: May cause irritation of the nose, throat and respiratory tract. Excessive inhalation may result in headache, dizziness, fatigue, nausea, loss of consciousness, and even death.
Eye: May cause eye irritation on short-term exposure to liquid or vapor.
Skin: May cause skin irritation on short-term exposure to liquid or vapor. Solvents may be absorbed through the skin in toxic amounts.
Ingestion: Ingestion may cause symptoms similar to those of inhalation. The oral toxicity is estimated to be low, therefore not expected to be harmful in small amounts. Aspiration of material into lungs can cause chemical pneumonitis, which can be fatal.
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Respiratory symptoms associated with pre-existing lung disorders and pre-existing heart disorders may be aggravated by exposure to this material. Prolonged skin contact with this product may defat skin leading to irritation or dermatitis resulting in itching, redness and rash.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea and loss of consciousness. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Chronic exposure may cause reversible kidney and liver injury.

Section 3 – Ingredient Information

Ingredient Name	CAS Number	% wt *or* % vol
Methyl Ethyl Ketone	78-93-3	0 – 5
Toluene	108-88-3	0 – 5
Acetone	67-64-1	40 - 70

Hazardous Ingredients:

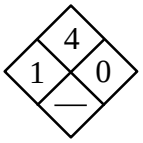
	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Methyl Ethyl Ketone	200 ppm	300 ppm	200 ppm	300 ppm	None estab	None estab	3000 ppm
Toluene	200 ppm	150 ppm	20 ppm	none estab.	100 ppm	150 ppm	500 ppm
Acetone	1000 ppm	1000 ppm	500 ppm	750 ppm	250 ppm	None estab.	2500 ppm

Section 4 - First Aid Measures

Inhalation: Move victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention immediately.
Eye Contact: Immediately flush eyes with running water for at least 15 minutes. Get medical attention.
Skin Contact: Immediately flush skin with running water and remove contaminated clothing. Wash exposed area with soap and water. Get medical attention.
Ingestion: DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Note to Physicians: This product contains methyl ethyl ketone (MEK), acetone and toluene.
Special Precautions/Procedures: Whenever possible, remove the victim from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: -20°C (-4°F)
Flash Point Method: SETA
Autoignition Temperature: 516°C (961°F)
LEL: 2.0% by volume
UEL: 11.5% by volume
Flammability Classification: Division 2
Extinguishing Media: In case of fire, use dry chemical, carbon dioxide, or foam. Water may not be effective as an extinguishing agent. Water fog or spray may be used to provide a smothering effect on fire and to cool fire-exposed containers and surrounding combustibles. Do not use a solid stream of water because it can scatter and spread the fire.
Unusual Fire or Explosion Hazards: Extremely flammable. Store and use away from all sources of heat, flame, or sparks. Do not smoke while applying. 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 flash back. All containers should be grounded when material is transferred.
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide or carbon dioxide, various hydrocarbons, nitrogen compounds, and hydrogen cyanide may be released in a fire.
Fire-Fighting Instructions: This product contains solvents that are dangerous fire and explosion hazards when exposed to heat or flame. Fire fighters should wear a self-contained breathing apparatus and full protective clothing with a full-face piece operated in the positive-pressure demand mode.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full-face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Remove all sources of ignition. Avoid breathing vapors. Use self-contained breathing apparatus in enclosed area. Ventilate area. Contain and remove with inert absorbent materials and non-sparking tools.
Personnel Safeguards: Immediately evacuate all non-essential personnel to safe areas. Emergency responders should wear proper protective gear before entering the affected area. Observe all precautions noted above.
Regulatory Notifications: Waste of this product is defined as hazardous according to U.S. EPA. Spill reporting requirements and reportable quantities vary by region. Consult all applicable state and local regulations.
Containment and Cleanup: Remove all sources of ignition. Do not use metal shovels or other tools that could create sparks. Prevent liquids from entering sewers, drains or waterways by diking with sand or earth. Absorb with vermiculite or other absorbent material and remove for disposal.

Section 7 - Handling and Storage

Handling Precautions: Use away from all sources of heat, flame, or sparks. Do not smoke while using. Handling equipment must be grounded to prevent sparking. Handle with non-sparking tools. Wash with soap and water before eating or drinking. Launder contaminated clothing. KEEP OUT OF REACH OF CHILDREN.

Storage Requirements: Keep containers cool, dry, and store away from all sources of heat, flame, and sparks. Keep containers tightly closed and store with adequate ventilation. Do not pressurize, cut, weld, or grind the containers or empty containers that may contain residual product and solvent vapors that may ignite explosively.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Do not use in enclosed areas without proper explosion-proof ventilation. General and local exhaust ventilation must be sufficient to control vapor concentrations and keep the PEL below TLV/TWA. Use explosion proof ventilation equipment. Take care not to draw vapors into non-explosion proof or spark generating equipment.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Respiratory Protection: Provide adequate ventilation to maintain vapors below TLV/TWA. If vapor levels are exceeded, use NIOSH approved respirator, both during and immediately after application, until vapor levels are below limits.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) REQUIRED. Protective glasses or goggles recommended. Industrial boots to protect feet from adhesive contact. Long sleeves, long trousers to protect skin from adhesive contact. Protective skin creams or emollients useful.
Safety Stations: Source of clean water should be available in the work area for flushing skin and eyes.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. KEEP OUT OF REACH OF CHILDREN!

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Pale yellow to amber liquid with strong ketone odor.
Odor Threshold: Not available
Vapor Pressure: 70.0mm Hg at 20°C
Vapor Density (Air=1): 2.4
Specific Gravity (H_2O=1, at 4 °C): 0.857
pH: N/A

Water Solubility: Negligible
Boiling Point: 79.6^{0}C (175°F)
Freezing/Melting Point: 85.9^{0}C
% Volatile: 70-80
Evaporation Rate: 3.8 (nBuAc=1)
VOC: max 250 gpl
Flash Point: -20°C (-4°F)
Flash Point Method: SETA
Autoignition Temperature: 516°C (961°F)
LEL: 2.0% by volume
UEL: 11.5% by volume

Section 10 - Stability and Reactivity

Stability: Stable under normal conditions.
Possibility of hazardous reactions: Will not occur.
Chemical Incompatibilities: Strong oxidizing agents, strong acids, or bases, alkali metals and halogens.
Conditions to Avoid: Heat, sparks, flames and other sources of ignition.
Hazardous Decomposition Products: Toxic gases or vapors such as carbon monoxide and carbon dioxide, may be released in a fire. Contact with strong oxidizing agents may cause fire and explosions.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Irritating

Skin Effects: Irritating

Acute Inhalation Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rat, inhalation, LC_{50}: > 8000 ppm / 8 hr
Toluene: Rat > 26,700 ppm 1 hr; Mouse 400 ppm 24 hr
Acetone: Rat > 20,700 ppm 8 hr

Acute Oral Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rat, oral, LD_{50}: 2.9 gm/kg
Toluene: Rat 5,000 mg/kg
Acetone: Rat 5,800 mg/kg
Mouse 3,000 mg/kg
Rabbit 5,340 mg/kg

Acute Dermal Effects: Product toxicity has not been determined.
Following are the component data:
Methyl ethyl ketone: Rabbit, dermal, LD_{50}: > 5 mL/kg

Chronic Effects: May cause skin sensitization in some people.
Carcinogenicity: Not listed in IARC or NTP
Mutagenicity: Some evidence in animal exposure to Toluene.
Teratogenicity: Some evidence in animal exposure to Toluene.
Reproductive Toxicity: Effects have been observed in rats exposed to >1000 ppm MEK vapors.

Section 12 - Ecological Information

Ecotoxicity: Not known
Environmental Fate: Not known
Environmental Degradation: Not known
Soil Absorption/Mobility: Not known

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.
Disposal Regulatory Requirements: Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal.
Container Cleaning and Disposal: Dispose of waste in accordance with all applicable regulations. Waste which results from the clean up of spilled product, absorbed by a noncombustible absorbing media, would not be considered a hazardous waste once the methyl ethyl ketone and toluene have evaporated.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives, 3, UN 1133, PGII
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: red caution label required
Special Provisions (172.102): 149, B52, IB2, T4, TP1, TP8

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.173
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: ---

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste Number (40 CFR 261.33): Methyl ethyl ketone, CAS #78-93-3, RCRA Code U159

RCRA Hazardous Waste Classification (40 CFR 261.31): F005 (methyl ethyl ketone, Toluene and Acetone).

RCRA Groundwater List:

Chemical Name	CAS #	Methods	PQL
Methyl ethyl ketone	78-93-3	8015, 8240	10, 100

CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112:

Methyl ethyl ketone	RQ 5,000 lb (2,272.7 kg)
Toluene	RQ 1,000 lb (454.5 kg)
Acetone	RQ 5,000 lb (2,272.7 kg)

SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Methyl Ethyl Ketone, CAS#78-93-3, 0 – 5%

Toluene, CAS#108-88-3, 0-5%

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:
Clean Water Act Priority Pollutants: Toluene is listed as a priority pollutant. RQ: 1,000 lb (454.5 kg)

Clean Water Act Hazardous Substances: none listed

Clean Air Act SOCMI Chemicals: Methyl ethyl ketone; CAS #78-93-3, Toluene, CAS #108-88-3; Acetone, CAS #67-64-1

Clean Air Act Hazardous Air Pollutants:Methyl ethyl ketone, CAS #78-93-3, Toluene, CAS 108-88-3, Acetone, CAS #67-64-1

Marine Pollutants: none listed

OSHA, IARC, NTP Carcinogens: none listed

State Regulations:
California Proposition 65 Chemicals: This product contains the following chemical(s) known to the state of California to cause birth defects or other reproductive harm: Toluene.

Delaware Air Quality Management List:

Methyl ethyl ketone	CAS #78-93-3	DRQ: 5000	State? No
Toluene	CAS #108-88-3	DRQ: 1000	State? Yes
Acetone	CAS #67-64-1	DRQ: 5000	State? Yes

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Code
Methyl ethyl ketone	78-93-3	2, 4, 5, 6, F8, F9
Toluene	108-88-3	2, 4, 5, 6, F7, F8
Acetone	67-64-1	2, 4, 5, 6, F8, F9

Michigan Critical Materials Register: Toluene 108-88-3 Report: -- Class: --

Minnesota Hazardous Substances List:

Chemical Name	CAS #	Codes	Hazards	Carcinogen
Methyl ethyl ketone	78-93-3	ANO	- -	No
Toluene:	108-88-3	ANO	skin	No
Acetone	67-64-1	AON	---	No

New Jersey RTK Hazardous Substance List:

Chemical Name	CAS #	Substance #	DOT #	TPQ	EHS
Methyl ethyl ketone	78-93-3	1258	1193	- -	
Toluene:	108-88-3	1866	1294	---	

New York List of Hazardous Substances:

Chemical Name	CAS #	RQ Air	RQ Land	Note
Methyl ethyl ketone	78-93-3	5000	1	- -
Toluene	108-88-3	1000	1	- -
Acetone	67-64-1	5000	1	- -

Pennsylvania Hazardous Substances List:

Chemical Name	CAS #	Code	
2-Butanone	78-93-3	E	Code E = Environmental hazard
Methyl benzene	108-88-3	E	
2-Propanone	67-64-1	E	

Washington Permissible Exposure Limits for Air Contaminants:

Chemical Name	CAS #	TWA Ppm	TWA mg	STEL ppm	STEL mg	Ceiling ppm	Ceiling mg	Skin
Methyl ethyl ketone	78-93-3	200	590	300	885	--	--	--
Toluene	108-88-3	100	375	150	560	--	--	--
Acetone	67-64-1	750	1800	1000	2400	--	--	--

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Sections 3, 8, 9, 10 & 15 – General Revision

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Product: Mule-Hide WBBA 2000 bonding adhesive
Document: MSDS 10-2505
Supplier: Mule-Hide Products Co., Inc.
P.O. Box 1057
Beloit, WI 53512-1057
608-365-3111
www.mulehide.com
Emergency: Chemtrec 800-424-9300

Material Safety Data Sheet

Revision Number: 005.1

Issue date: 06/01/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **MULE-HIDE WBBA 2000**
Product type: Adhesive

IDH number: 1065806

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Customer Service: 1-888-480-6889
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: liquid
Color: Off white
Odor: Mild

HMIS:
HEALTH: *1
FLAMMABILITY: 0
PHYSICAL HAZARD: 0
Personal Protection: Refer to MSDS

CAUTION: MAY CAUSE SLIGHT EYE SKIN OR RESPIRATORY TRACT IRRITATION ON REPEATED CONTACT.

Relevant routes of exposure: Skin, Lungs, Ingestion, Eyes

Potential Health Effects

Inhalation: Inhalation of mist or spray may cause irritation of the respiratory tract and nasal passages.
Skin contact: May cause slight irritation to skin.
Eye contact: May cause slight irritation to eyes on contact.
Ingestion: Not expected under normal conditions of use. May cause gastrointestinal tract irritation if swallowed.

Existing conditions aggravated by exposure: None known

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Vinyl acetate	108-05-4	0.1 - 1

4. FIRST AID MEASURES

Inhalation: If symptoms develop and persist, get medical attention. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Move to fresh air.

Skin contact: Wash affected area immediately with soap and water.

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes.

Ingestion: If symptoms develop and persist, get medical attention. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash point: not applicable

Autoignition temperature: Not applicable

Flammable/Explosive limits - lower: Not applicable

Flammable/Explosive limits - upper: Not applicable

Extinguishing media: water, carbon dioxide, foam, powder

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Unusual fire or explosion hazards: None

Hazardous combustion products: Thermal decomposition can lead to release of irritating gases and vapors. Oxides of carbon.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Small spills can be absorbed with vermiculite, clay or other suitable non-biodegradable absorbent material, scooped up and placed in containers. For large spills dike ahead and collect liquid.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Keep container closed. Do not breathe gas/fumes/vapor/spray. Wash thoroughly after handling.

Storage: Keep containers closed when not in use. Store between 40°F and 100°F. (5° and 38°C).

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Vinyl acetate	10 ppm TWA 15 ppm STEL	None	None	None

Engineering controls: Work should be done in an adequately ventilated area (i.e., ventilation sufficient to maintain concentrations below one half of the PEL and other relevant standards). Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination.

Respiratory protection: No personal respiratory protective equipment normally required. Use a NIOSH approved respirator if ventilation is inadequate. Observe OSHA regulations for respiratory use (29 CFR 1910.134).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	liquid
Color:	Off white
Odor:	Mild
Odor threshold:	Not available
pH:	7 - 9
Vapor pressure:	18 mbar (20 °C (68°F))
Boiling point/range:	100 °C (212°F)
Melting point/ range:	0 °C (32°F)
Specific gravity:	1.0 - 1.2
Vapor density:	Heavier than air.
Flash point:	not applicable
Flammable/Explosive limits - lower:	Not applicable
Flammable/Explosive limits - upper:	Not applicable
Autoignition temperature:	Not applicable
Evaporation rate:	0.36 (Butyl acetate = 1)
Solubility in water:	Dispersible
Partition coefficient (n-octanol/water):	Not applicable
VOC content:	< 1.0 % (by weight)

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Thermal decomposition can lead to release of irritating gases and vapors.

Incompatible materials: Keep away from strong oxidizing agents, strong Lewis or mineral acids.

Conditions to avoid: Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Vinyl acetate	No	Group 2B	No

Hazardous components	Health Effects/Target Organs
Vinyl acetate	Central nervous system, Irritant, Mutagen, Some evidence of carcinogenicity

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal:	This product is not a RCRA hazardous waste when discarded. Processing, use, or contamination of this product may change the hazard classification and waste management options. Follow all local, state, federal and provincial regulations for disposal.
Hazardous waste number:	Not hazardous.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification:	None above reporting de minimus
CERCLA/SARA Section 302 EHS:	None above reporting de minimus
CERCLA/SARA Section 311/312:	Delayed Health
CERCLA/SARA 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Vinyl acetate (CAS# 108-05-4).
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

Prepared by: Ed Waldynski, Regulatory Affairs Specialist

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation does not assume responsibility for any results obtained by persons over whose methods Henkel Corporation has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of Henkel Corporation's products. In light of the foregoing, Henkel Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

Material Safety Data Sheet

Product Name: Mule-Hide PVC Membrane Cleaner **MSDS No. 10-3110**

Date of Preparation: 2/3/12 Revision: 005

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide PVC Membrane Cleaner **General Use:** Cleaning Solution for Weathered PVC Membrane
Manufacturer: Carlisle SynTec, P.O. Box 7000, 1295 Ritner Hwy, Carlisle, PA, 17013-0925 (717) 245-7000
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr., Beloit, WI 53511 Phone: 800-786-1492
Emergency Phone: Chemtrec (800) 424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Danger – Highly flammable liquid and vapor
Warning – Causes skin irritation
Warning – Causes serious eye irritation
Danger – May be fatal if swallowed and enters airways
Warning – May cause an allergic skin reaction
Warning – May cause respiratory irritation

HMIS
H 1
F 3
R 0
PPE†
†Sec. 8

Potential Health Effects

Eye: Exposure can cause eye irritation. Symptoms may include stinging, tearing, redness and swelling.
Skin: Exposure may cause mild skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking, and skin burns. Skin absorption is possible, but harmful effects are not expected from this route of exposure under normal conditions of handling and use.
Swallowing: Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. This material can enter the lungs during swallowing or vomiting and cause lung inflammation and/or damage.
Inhalation: Exposure to vapor or mist is possible. Short-term inhalation toxicity is low. Breathing small amounts during normal handling is not likely to cause harmful effects; breathing large amounts may be harmful. Symptoms are more typically seen at air concentrations exceeding the recommended exposure limits.
Symptoms of Exposure: Mouth and throat irritation, gastrointestinal irritation (nausea, vomiting, diarrhea), irritation (nose, throat, respiratory tract), cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), central nervous system (CNS) depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other CNS effects, high blood sugar, coma.
Target Organ Effects: This material (or a component) shortens the time of onset or worsens the liver and kidney damage induced by other chemicals. Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: mild, reversible liver effects, mild, reversible kidney effects.
Developmental Information: This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.
Cancer Information: No data
Other Health Effects: No data
Primary Route(s) of Entry: Inhalation, Skin absorption, Skin contact, Eye contact

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Acetone	67-64-1	100%
Additional Ingredients	**CAS Number**	**% wt**

Section 4 - First Aid Measures

Eyes: If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin: Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

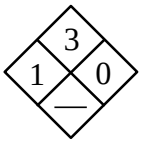
Swallowing: Do not induce vomiting. This material is an aspiration hazard. If individual is drowsy or unconscious, place on left side with the head down. Seek medical attention. If possible, do not leave individual unattended.

Inhalation: If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Note to Physicians: This material (or a component) has produced hyperglycemia and ketosis following substantial ingestion.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: -4°F (-20°C)
Flash Point Method: Closed Cup
Autoignition Temperature: 465°C (869°F)
LEL: 2.6%
UEL: 12.8%
Flammability Classification: Flammable Liquid
Extinguishing Media: Alcohol foam, carbon dioxide, dry chemical.

Unusual Fire or Explosion Hazards: Material is highly volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from the material handling point. Never use welding or cutting torch on or near can (even empty) because product (even just residue) can ignite explosively.

Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide or carbon dioxide may be released in a fire.

Fire-Fighting Instructions:

Fire-Fighting Equipment: Water may be ineffective. Water may be used to keep fire-exposed containers cool until fire is out. Wear a self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

Section 6 - Accidental Release Measures

Small Spills: Absorb liquid on vermiculite, floor absorbent or other absorbent material.

Large Spills: Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from the area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

Section 7 - Handling and Storage

Handling Precautions: Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers should be grounded and/or bonded when material is transferred. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published “autoignition” or “ignition” temperature valves cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

Section 8 - Exposure Controls / Personal Protection

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Acetone	1000 ppm	1000 ppm	500 ppm	750 ppm	250 ppm	None estab.	2500 ppm

Engineering Controls: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Eye Protection: Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Clear, colorless, volatile liquid
Appearance and Odor: Characteristic sweetish odor
Odor Threshold(ppm): 100 ppm
Vapor Pressure: 181 mm of Hg (@20°C/68°F)
Vapor Density (Air=1): 2
Formula Weight: 58.1 Molecular Weight
Density: 6.590 lbs/gal @ 68°F (20°C)
Specific Gravity (H_2O=1, at 4°C/39°F): 0.79
pH: 7
VOC (gpl): VOC Exempt

Water Solubility: Complete
Other Solubilities: Easily Soluble in methanol and diethyl ether.
Boiling Point(°C): 56.1 (133°F)
Freezing/Melting Point(°C): -95.4 (-139.6°F)
Viscosity: N/A
Refractive Index: N/A
Surface Tension: N/A
% Volatile: 100
Evaporation Rate: 11.6 (Butyl Acetate = 1)
Flash Point: -4°F (-20°C)
Flash Point Method: Closed Cup
Autoignition Temperature: 465°C (869°F)
LEL: 2.6%
UEL: 12.8%

Section 10 - Stability and Reactivity

Stability: Stable.
Possibility of Hazardous Reactions: Will not occur.
Chemical Incompatibilities: Avoid contact with acids, strong oxidizing agents.
Conditions to Avoid: Avoid heat, sparks and open flame
Hazardous Decomposition Products: Toxic gases or vapors such as carbon monoxide, carbon dioxide, or oxides of nitrogen may be released in a fire.

Section 11- Toxicological Information

Toxicity Data: No Data

Section 12 - Ecological Information

Ecotoxicity: Not Determined
Environmental Fate: Not Determined
Environmental Degradation: Not Determined
Soil Absorption/Mobility: Not Determined

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Acetone
Shipping Symbols: (3)
Hazard Class: Flammable (3)
ID No.: UN1090
Packing Group: II
Label: 3
Special Provisions (172.102):
IB2, T4, TP1

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5 liters
b) Cargo Aircraft Only: 60 liters

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: ---

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261): D001
CERCLA Hazardous Substance (40 CFR 302.4): Acetone
CERCLA Reportable Quantity (RQ), 5000 lbs.
SARA 311/312 Codes: Hazard Class – 40 CFR 370.2 Immediate (X) Delayed (X) Fire (X) Reactive ( ) Sudden Release of Pressure ( )
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance (29CFR 1910.106)

State Regulations: California Proposition 65: This product contains the following chemical(s) known to the state of California to cause birth defects or other reproductive harm:

New Jersey RTK– Acetone 67-64-1
Pennsylvania RTK – 2-Propanone 67-64-1

Section 16 - Other Information

Prepared By: Research & Development
Formatting Changes: General revision

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Material Safety Data Sheet

PVC CUT-EDGE SEALANT **MSDS No. 10-3410**

Date of Preparation: 10/10/13 Revision: 004

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: PVC CUT-EDGE SEALANT
Chemical Formula: Mixture **CAS Number:** None Assigned
Other Designations:
General Use: To Seal Cut Edges of Reinforced PVC Membrane
Manufacturer: Carlisle SynTec, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-4SYNTEC
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr. Beloit, WI 53511 Phone: 800-786-1492
Emergency Phone Number: CHEMTREC (USA) 800-424-9300

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆
This material is HAZARDOUS by OSHA Hazard Communication definition
Danger- Extremely flammable liquid and vapor
Warning- Causes skin irritation
Warning- Causes eye irritation
Warning- May be harmful if swallowed and enters airways
Warning- May cause damage to heart, lungs, kidney, liver and central nervous system through prolonged or repeated exposure.

HMIS
H 2
F 3
R 1
PPE†
†Sec. 8

Potential Health Effects

Primary Entry Routes: inhalation, skin/eye contact and ingestion
Target Organs: This material may aggravate pulmonary/bronchial disease and/or cause breathing difficulty. Tetrahydrofuran – Repeated or prolonged exposure may cause signs of central nervous system depression and respiratory irritation. This material has been shown to induce tumors in laboratory animals. Butylated Hydroxy Toluene – No adverse chronic effects have been reported for this material.

Acute Effects

Inhalation: Overexposure may cause soughing, shortness of breath, dizziness, intoxication and collapse. It may cause irritation to the respiratory tract and to other mucous membranes. Inhaling mist may produce signs of central nervous system involvement.

Eye: Although no appropriate human or animal health effects data are known to exist, this material is expected to cause eye irritation.

Skin: Prolonged or repeated contact may cause skin to become dry or cracked. Causes dermatitis. Although no appropriate human or animal heaths effects data are known to exist, this material is not expected to be a health hazard by skin absorption

Ingestion: Swallowing this material may result in a health hazard.

Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Pre-existing respiratory and skin disorders; CNS, heart liver and/or kidney disease.

Chronic Effects: Prolonged, excessive exposure to vapors may cause nervous system, heart, lungs, kidney, and liver damage, and repeated or prolonged exposure will defat the skin, causing drying, cracking and dermatitis.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Tetrahydrofuran (THF)	109-99-9	60-100
Vinyl Polymer Compound	Mixture	10 – 30
(2-Hydroxy-4-(octyl)-phenyl)phenylmethanone	1843-05-6	0.1 – 1.0
Butylated Hydroxy Toluene	128-37-0	< 0.1

Section 4 - First Aid Measures

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention immediately. Respiratory symptoms associated with pre-existing lung disorders, skin allergies, and pre-existing heart disorders may be aggravated by exposure to this material.

Eye Contact: Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.

Skin Contact: Immediately flush skin with running water and remove contaminated clothing. Wash exposed area with soap and water. Seek medical attention if ill effect or irritation develops.

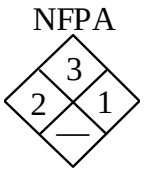
Ingestion: DO NOT induce vomiting. Risk of damage to lungs exceeds poisoning risk. If large quantity swallowed, give lukewarm water (pint/1/2 liter) ONLY if victim is completely conscious/alert. Obtain emergency medical attention.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Skin contact may aggravate existing dermatitis. Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

Special Precautions/Procedures: Use away from all sources of heat, flame or sparks. Do not smoke while using. Handling equipment must be grounded to prevent sparking. Handle with non-sparking tools. Wash with soap and water before eating or drinking. Launder contaminated clothing. KEEP OUT OF REACH OF CHILDREN.

Section 5 - Fire-Fighting Measures



Flash Point: 1°F (-17°C)
Flash Point Method: TCC
Burning Rate: N/A
Autoignition Temperature: 321°C (610°F)
LEL: 2%
UEL: 11.8%
Flammability Classification: Division 3
Extinguishing Media: SMALL FIRE: Use dry chemicals, CO_2, water spray or alcohol-resistant foam.
LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.
DO NOT USE SOLID WATER STREAM

Unusual Fire or Explosion Hazards: Vapor may form flammable atmosphere in confined spaces or low areas. Pressure build-up may also occur in closed, heated containers. Water spray or fog should be used to keep containers cool.

Hazardous Combustion Products: Carbon monoxide and carbon dioxide.

Fire-Fighting Instructions: This product contains solvents that are dangerous fire and explosion hazards when exposed to heat or flame. Fire fighters should wear self-contained breathing apparatus and full protective clothing with a full face piece operated in the positive pressure demand mode. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

Containment Procedures: Remove all sources of ignition. Evacuate and ventilate spill area. Dam spill area with sand, earth or other suitable absorbent. Prevent entry of materials into sewers, other water sources, or land areas. Wear full protective clothing and respiratory protection during clean-up as required to maintain exposures below the applicable exposure limit. Shovel absorbed material into containers in well-ventilated area. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material.

Disposal: This product is classified as ignitable hazardous waste by the Resource Conservation and Recovery Act (RCRA; 40 CFR 261: Waste # D001). Dispose of spilled material in accordance with federal, state and local regulations in a hazardous waste facility. Incineration is the preferred method of disposal. Empty containers must be handled with care due to product residue. Decontaminate empty containers prior to disposal. Do not heat or cut empty containers with electric or gas torch. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

Section 7 - Handling and Storage

Storage/Handling: For industrial use only. Keep container tightly closed when not in use. Extinguish all ignition sources. Use protective equipment as described in section 8 of this material safety data sheet when handling **uncontained** material. Warehouse storage should be in accordance with package directions, if any. Material should be kept cool and dry and protected from the elements. Store in tightly closed containers to prevent contamination. Handle with non- sparking tools. Store at 15.5-32.2°C (60-90°F) and out of the sun.

Conditions to Avoid: Keep away from ignition sources, such as heat, sparks, pilot lights, static electricity and open flames. Containers exposed to elevated temperatures may develop pressure build-up and rupture.

Section 8 - Exposure Controls / Personal Protection

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Tetrahydrofuran	200 ppm	250 ppm	200 ppm	250 ppm	200 ppm	250 ppm	2000 ppm
Vinyl Compound Polymer	None estab	None esta	None estab	None estab	None estab	None estab	None estab
(2-Hydroxy-4-(octyloxy)-phenyl)phenylmethanone	None estab	None estab	None estab	None estab	None estab	None estab	None estab
Butylated Hydroxy Toluene	None estab	None estab	2 mg/m3	None estab	None estab	None estab	None estab

Summary: Protective equipment should be provided as necessary to prevent inhalation of vapors, prolonged skin contact, and to keep exposure levels below the applicable exposure limits identified in Section 2.

Ventilation: Local exhaust or general dilution ventilation may be required to maintain exposures below the applicable exposure limits. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

Respiratory Protection: Use a NIOSH approved organic respirator to protect against inhalation of vapors. A respirator should be used if ventilation is unavailable, or is inadequate for keeping vapor levels below the applicable exposure limits.

Eye: Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor.

Skin: Depending on conditions of use, protective gloves, apron, boots, head and face protection should be worn. Permeation gloves (that meet ANSI/ISEA 105-2005) required.

Other: Emergency eye wash and safety shower should be available in the immediate vicinity of any potential exposure. Wash hands before eating, drinking, smoking, applying cosmetics (including contact lenses) or using toilet facilities.

Special Considerations for Repair/Maintenance of Contaminated Equipment. Use personal protective equipment as discussed above.

Section 9 - Physical and Chemical Properties

Physical State: Liquid.
Appearance and Odor: Clear liquid with chemical odor.
Odor Threshold: Not determined
Vapor Pressure: Not determined
Vapor Density (Air=1): >1
Formula Weight:
Density: 7.8 lbs/gal @ 77°F
Specific Gravity (H_2O=1, at 4 °C): 0.93
pH: Not determined
VOC: 737 grams per liter

Water Solubility: Not determined
Other Solubilities:
Boiling Point: 66-156°C/151-312°F
Freezing/Melting Point (°C): Not determined.
Viscosity: Not determined
% Volatile: 80 - 82
Evaporation Rate(nBuAc=1): Not determined
Flash Point: 1°F (-17°C)
Flash Point Method: TCC
Burning Rate: N/A
Autoignition Temperature: 321°C
LEL: 2%
UEL: 11.8%

Section 10 - Stability and Reactivity

Stability: This product is stable with an appropriate level of butylated hydroxyl toluene inhibitor (minimum 200 ppm)
Possibility of Hazardous Reactions: May occur.
Chemical Incompatibilities: Reacts vigorously with strong oxidizers and acids.
Conditions to Avoid: Heat, sparks, and flames; ignition sources.
Hazardous Decomposition Products: Carbon monoxide, and carbon dioxide.

Section 11- Toxicological Information

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information. The hazards described in this document have been evaluated based on a threshold of 1.0% for all hazardous ingredients and 0.1% for all carcinogens.

For Components:

Tetrahydrofuran	LC50 (Inhalation)	Rat	21,000 ppm	3 hours

Repeated Dose Toxicity: The National Toxicology program has reported that exposure of rats and mice to THF vapor levels up to 1800 ppm 6hr/day, 5 days/week for their lifetime caused an increased incidence of kidney tumors in male rats and liver tumors in female mice. The significance of these findings for human health is unclear at this time, and may be related to "species specific" effects. Elevated incidences of tumors in humans have not been reported for THF. Symptoms of respiratory tract irritation and damage to respiratory epithelium were reported in rats exposed to 5000 ppm of THF for 90 days. Elevation of SGPT suggests a disturbance of liver function. The No Observed Effect Level (NOEL) was reported to be 200 ppm (JPN.J Ind Health 24, 379, 1982). THF was not genotoxic in microorganisms (Cancer Research 39:682, 1979) drosophila (Env.Mut.7:325, 1985) or in the unscheduled DNA synthesis assays (Env.Mut. 5:482, 1983).

Butylated Hydroxy Toluene	LD50 (Oral)	Rat	890 mg/kg
		Mouse	650 mg/kg

Carcinogenicity: When administered to rats by stomach tube, butylated hydroxyl toluene (BHT) produced tumors of the forestomach. On the basis of this information an International Agency for Research on Cancer (IARC) working group concluded that there is 'limited evidence' for the carcinogenicity of BHT in laboratory animals. No case report or epidemiological study of carcinogenicity to humans was available to the working group; thus no evaluation could be made of the carcinogenicity of BHT to humans.

Section 12 - Ecological Information

Ecotoxicity: This material is expected to be non-hazardous to aquatic species.

(For component Tetrahydrofuran)

Toxicity to Fish/Amphibians:

LC50 / 96 hours fathead minnow 2160 mg/l

Toxicity to Aquatic Invertebrates:

LC50 / 24 hours daphnia 5930 mg/l

Toxicity to Aquatic Plants:

NOEC / 48 hours algae 225 mg/l

Environmental Fate: This material is volatile and water soluble. It may enter soil and may contaminate water. It is expected to be poorly adsorbed onto soils or sediments. This material is likely to evaporate from soil and water. Theo. BOD 100% (14 day).

Bioaccumulation: This material is not expected to bioaccumulate.

Biodegradation: This material is expected to be readily biodegradable.

Section 13 - Disposal Considerations

Summary: Contaminated product, soil or water may be hazardous waste due to low flash point. Assure effluent complies with applicable regulations. Landfill solids at permitted sites. Use registered transporters. Burn concentrated liquids in systems compatible with water soluble wastes. Avoid flame-outs. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade. Avoid overloading/poisoning plant biomass. Contaminated product/soil/water may be I.S. Resource Conservation and Recovery Act (RCRA)/U.S. Occupational Safety and Health Administration (OSHA) hazardous waste due to potentially low flash point. (See 40 U.S. Code of Federal Regulations (CFR) 261 and 29 CFR 1910).

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Flammable Liquid NOS
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1993
Packing Group: II
Label: flammable liquid label required for 5 gallon pails only
Special Provisions (172.102): IB2, T7, TP1, TP8, TP28
RQ (Reportable Quantity) – 49 CFR 172.101

Product Quantity (lbs)	Component
1250	Tetrahydrofuran

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5 L
b) Cargo Aircraft Only: 60 L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: N/A

Section 15 - Regulatory Information

US Federal Regulations:

EPA Regulations:

RCRA Hazardous Waste Number (40 CFR 261.33): Not listed

RCRA Hazardous Waste Classification (40 CFR 261): Not classified

TSCA (Toxic Substances Control Act) Status:
TSCA (United States) – The intentional ingredients of this product are listed.

CERCLA Hazardous Substance RQ – 40 CFR 302.4 (a)

Component	RQ (lbs)
Tetrahydrofuran	1000

CERCLA RQ – 40 CFR 302.4 (b)
Materials with a "listed" RQ may be reportable as an "unlisted hazardous substance". See 40 CFR 302.5 (b).

SARA 311/312 Codes:
Immediate (X) Delayed (X) Fire (X) Reactive ( ) Sudden Release of Pressure ( )

SARA 313 Components (40 CFR 372.65):

Section 313 Component(s)	CAS Number	%
NONE		

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance (29 CFR 1910): None listed

EPA Accidental Release Prevention (40 CFR 68): None listed

State and Local Regulations:

California Proposition 65

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substances known to the State of California to cause cancer: NONE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substances known to the State of California to cause reproductive harm: NONE

Delaware Air Quality Management List:

Chemical Name	DRQ:	State?
Tetrahydrofuran	1000	Must be reported to the DRQ

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Codes
Tetrahydrofuran	109-99-90	2, 4, 5, 6, F8

Michigan Critical Materials Registry:

Chemical Name	CAS #	Report	Class
NONE			

Minnesota Hazardous Substance:

Chemical Name	Codes	Hazards	Carcinogen?
Tetrahydrofuran	AO	--	No

2,6 Di-tert-butyl-p-cresol	A	- -	No

New Jersey RTK Label Information:

Chemical Name	CAS #	TPQ	EHS
Tetrahydrofuran	109-99-9	- -	--

New York List of Hazardous Substances:

Chemical Name	RQ – Air	RQ – Land	Note
Tetrahydrofuran	1000	100	none

Pennsylvania RTK Label Information

Chemical Name	CAS #	Code
Furan, tetrahydro	109-99-9	E
Phenol, 2,6-bis (1,1 dimethylethyl)-4-methyl-	128-37-0	--

Washington Air Contaminant:

TWA (ppm):	200 (Tetrahydrofuran)	
TWA (mg):	590 (Tetrahydrofuran)	10 (2-6-Di-tert-butyl-p-cresol)
STEL (ppm):	250 (Tetrahydrofuran)	
STEL (mg):	735 (Tetrahydrofuran)	
Ceiling (ppm):	None listed	
Ceiling (mg):	None listed	
Skin:	None listed	

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Revised Section 14 DOT transportation Data.
Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.

Mule Hide Products Co., Inc.
P.O. Box 1057
Beloit, WI 53512
800-786-1492

"Article"

Revised: April 2009

Product Names	Mule-Hide PVC Reinforced Membrane, PVC Reinforced Strips, PVC Non-Reinforced Flashing, PVC Pre-Molded Pipe Seals, PVC Molded Sealant Pockets, PVC Extension Legs, PVC Universal Corners, PVC Coated Metal, PVC Walkway Rolls, PVC T-Joint Covers.		
Chemical Name	Polyvinyl Chloride Polymer with Flame Retardant		
Manufacturer Address	Carlisle SynTec Incorporated 1285 Ritner Highway Carlisle, PA 17013	**Supplier Address:**	Mule-Hide Products Co., Inc. P.O. Box 1057 Beloit, WI 53511
Phone	800-479-6832	**Phone:**	608-365-3111
Internet	www.Carlisle-SynTec.com	**Internet:**	www.mulehide.com
Emergency Phone	800-424-9300 Chemtrec		
MSDS Number	N/A		
Effective Date	November 1, 2005		
NFPA Rating	Health 0, Reactivity 0, Flammability 0 0-least, 1-slight, 2-moderate, 3-high, 4-extreme These ratings should be used only as part of fully implemented H.M.I.S. Program		

United States version: Sheeting and Accessories

To Whom it may concern:

Thank you for your inquiry regarding an MSDS for Mule-Hide sheeting and accessory products. Please be aware that no MSDS exists for these as they are considered an **"article"** under the Hazard Communication Standard (HCS) and are exempt from the MSDS requirement.

A hazardous chemical, as defined by the Hazard Communication Standard (HCS), is any chemical, which can cause a physical or a health hazard. This determination is made by the chemical manufacturer, as described in 29 CFR 1910.1200(d). Listed below is the section of the standard that defines an **"article".**

Chemical manufacturers are not required to provide MSDSs for chemicals not covered under the HCS. OSHA realizes that manufacturers often provide MSDSs for reasons other than those of meeting the requirements of the HCS and that this can cause confusion to downstream users. Employers should contact the manufacturer when they question the hazard status of a chemical.

An "article" is defined in paragraph (c) of the HCS as: "a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees." A product meeting this criterion is ***exempt*** from the MSDS requirement.

The raw material formulations and process used in the manufacture of our products are considered propriety. This standard provides for both the need to protect against potential exposure and the need to maintain confidentiality or proprietary information. The standard provides for the limited disclosure of certain proprietary information upon official request, either in a medical emergency or a non-emergency to a qualified health professional under specific conditions of need and confidentiality. Since our sheeting and accessories do not release or otherwise result in exposure to a hazardous chemical under normal recommended conditions of use, disclosure of proprietary materials and processes is available as described in the trade secret section of the standard.

While Mule-Hide Products Co., Inc. believes the information contained herein is accurate: it is not to be taken as warranty or representation for which Mule-Hide Product Co., Inc. assumes any legal responsibility for product liability. This information is offered solely for our customers' consideration, investigation and any necessary verification. Any use of this information or of the sheeting and accessories provided by Mule-Hide Products Co., Inc. must be determined by the user to be acceptable for their intended purpose and in accordance with the appropriate federal, state or local laws and regulations including 29 CFR in its entirety.

Canadian version: Sheeting and Accessories

Mule Hide Products Co., Inc.
P.O. Box 1057
Beloit, WI 53512
800-786-1492

"Article"

Revised: April 2009

Please be aware that no MSDS exists for these as they are considered a **"manufactured article"** under the Canadian WHMIS Standard and are exempt from the MSDS requirement.(1)

A hazardous product, as defined by the Hazard Products Act and WHMIS Standard, is any chemical, which can cause a physical or a health hazard. This determination is made by the chemical manufacturer, as described in the Hazardous Products Act. Listed below is the section of the standard that defines an **" manufactured article".**

(1)manufactured article" means any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, under normal conditions of use, will not release or otherwise cause a person to be exposed to a controlled product;

Chemical manufacturers are not required to provide MSDSs for chemicals not covered under the Hazardous Products Act. COSH realizes that manufacturers often provide MSDSs for reasons other than those of meeting the requirements of WHMIS and that this can cause confusion to downstream users. Employers should contact the manufacturer when they question the hazard status of a chemical. A product which falls within any of the hazard criteria set out in Part IV of the *Controlled Products Regulations* (*CPR*) is a WHMIS "controlled product" and, unless exempt under Section 12 of the *Hazardous Products Act* (*HPA*), is subject to the MSDS and labelling requirements of the *HPA*.

> **Section 12.** This Part does not apply in respect of the sale or importation of any
> (*a*) explosive within the meaning of the *Explosives Act*;
> (*b*) cosmetic, device, drug or food within the meaning of the *Food and Drugs Act*;
> (*c*) control product within the meaning of the *Pest Control Products Act*;
> (*d*) nuclear substance, within the meaning of the *Nuclear Safety and Control Act*, that is radioactive;
> (*e*) hazardous waste;
> (*f*) product, material or substance included in Part II of Schedule I and packaged as a consumer product;
> (*g*) wood or product made of wood;
> (*h*) tobacco or a tobacco product as defined in section 2 of the *Tobacco Act*; or
> ***(i) manufactured article.***

The raw material formulations and process used in the manufacture of our products are considered propriety. This standard provides for both the need to protect against potential exposure and the need to maintain confidentiality or proprietary information. The standard provides for the limited disclosure of certain proprietary information upon official request, either in a medical emergency or a non-emergency to a qualified health professional under specific conditions of need and confidentiality. Since our sheeting and accessories do not release or otherwise result in exposure to a hazardous chemical under normal recommended conditions of use, disclosure of proprietary materials and processes is available as described in the trade secret section of the standard.

While Mule-Hide Products Co., Inc. believes the information contained herein is accurate: it is not to be taken as warranty or representation for which Mule-Hide Products Co., Inc. assumes any legal responsibility for product liability. This information is offered solely for our customers' consideration, investigation and any necessary verification. Any use of this information or of the sheeting and accessories provided by Mule-Hide Products Co., Inc. must be determined by the user to be acceptable for their intended purpose and in accordance with the appropriate federal, state or local laws and regulations including CPR in its entirety.

Should you have any further questions or need additional information please contact our Customer Service Department at 800-786-1492.

Material Safety Data Sheet

Date of Preparation: August 2011 MSDS 10-6210

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide Poly ISO 1, Mule-Hide Poly ISO 1-HD
Chemical Family: Polyisocyanurate
CAS Number: N/A Other Designations: Polyiso
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr, Beloit, WI 53511, Phone: 800-786-1492
Manufacturer: Hunter Panels LLC, 15 Franklin Street, Portland, ME 04101
Emergency Phone Number: CHEMTREC (USA) 800-424-9300
NFPA Hazard Rating: Health 1, Flammability 1, Reactivity 0
HMIS Hazard Rating: Health 1, Flammability 1, Reactivity 0

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS #	% wt	OSHA PEL (ppm)	TWA (ppm)
Polyisocyanurate	None	> 35	None Established	None Established
Proprietary additives	Proprietary	< 5	None Established	Non Established
n-Pentane	109-60-0	< 8	1000	600
Iso-Pentane	78-78-4	< 2	1000	600
Fibrous glass	65997-17-3	< 10	TLV 1 f/cc(Respirable)	TLV 5 mg/m^3 (Inhalable)
Calcium Carbonate	471-34-1	< 40	PEL 15 mg/m^3 (Total)	PEL 5 mg/m^3 (Respirable)

Section 3 - Hazards Identification

Potential Health Effects

Primary Entry Routes: Inhalation, skin contact
Target Organs:
Acute Effects
Inhalation: irritation.
Eye: irritation
Skin: irritation
Ingestion:
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure:
Chronic Effects: Possible allergic reaction of respiratory system (sensitization

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.
Eye Contact: Flush with water for 15 minutes or until irritation ceases.
Skin Contact: Wash with soap and water.
Ingestion:
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians:
Special Precautions/Procedures: Persons who develop symptoms of allergy, irritation, respiratory problems, or puffiness around the eyes should be examined by a physician as soon as possible.

Section 5 - Fire-Fighting Measures

Flash Point: N/A
Flash Point Method: N/A
Burning Rate:
Autoignition Temperature: Not available.
LEL: N/A
UEL: N/A
Flammability Classification: Division 4
Extinguishing Media: In case of fire, use dry chemicals, carbon dioxide, foam, or water fog,

Unusual Fire or Explosion Hazards: None known.
Hazardous Combustion Products: Carbon monoxide, carbon dioxide.
Fire-Fighting Instructions: Fire-fighters should wear self-contained breathing apparatus.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Normal housekeeping.
Small Spills: N/A
Large Spills: N/A
Containment: N/A
Cleanup: N/A
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: No special equipment required.
Storage Requirements: Protect from moisture.
Regulatory Requirements: N/A

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Sufficient ventilation (when cutting) to keep exposure to nuisance dust below 5 mg/m^3.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Administrative Controls:
Respiratory Protection: OSHA approved respirator or dust mask when cutting.
Protective Clothing/Equipment: Protective gloves. Safety glasses or goggles, especially when cutting. Protective clothing and footwear.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance and Odor: Tan core foam with cellulose glass fiber facings-no odor.
Odor Threshold: N/A
Vapor Pressure: N/A
Vapor Density (Air=1): N/A
Formula Weight:
Specific Gravity (H_2O=1, at 4 °C): Unknown
pH: N/A

Water Solubility: Not soluble.
Other Solubilities:
Boiling Point: N/A
Freezing/Melting Point: N/A
Viscosity: N/A
Refractive Index: N/A
Surface Tension: N/A
% Volatile: N/A
Evaporation Rate: N/A

Section 10 - Stability and Reactivity

Stability: Stable.
Polymerization: Will not occur.
Chemical Incompatibilities: Acetone, MEK, THF, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide, and dimethyl formamide.
Conditions to Avoid: Open flame. Will burn if exposed to fire of sufficient heat and intensity.
Hazardous Decomposition Products: Toxic Smoke or vapors, such as carbon monoxide or carbon dioxide, may be released in a fire.

Section 11- Toxicological Information

Acute Toxicity

A: General Product Information

Dust from this product is a mechanical irritant, which means that it may cause temporary irritation or scratchiness of the throat, and/or itching of the eyes and skin.

n-pentane may be released at very low concentrations (well below their lower flammability limits) from these products when they are cut or crushed. These pentanes are nontoxic at levels below their lower flammability limits.

B: Component Analysis – LD50/LC50

n-pentane (109-60-0)

Oral LD50 Mouse: 12800 mg/kg

Carcinogenicity

A: General Product Information

The Occupational Safety and Health Administration (OSHA), National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), and American Conference of Governmental Industrial Hygienists (ACGIH) have not classified this product as a carcinogen.

B: Component Carcinogenicity

Continuous filament glass fibers (65997-17-3)

ACGIH: A4 – Not classifiable as a Human Carcinogen

IARC: Group 3 – Not classifiable (IARC Monograph 81 [2002] (listed under Man-made mineral fibres), Monograph 43 [1988]

Chronic Toxicity

Polyisocyanurate Foam: There is no evidence that dust from this material causes disease in man. There are no known animal studies of the chronic health effects of breathing dust from polyisocyanurate foam. However, a subchronic inhalation study showed no adverse respiratory effects in rats as a result of breathing 9 mg/m3 of dust from a similar foam (polyurethane foam) for 3 months (Thyssen et al., 1978). In, 1987, IARC designated polyurethane as Group 3, not classifiable as to carcinogenicity to humans (Monograph 19).

Continuous Filament Glass Fiber: No chronic helath effects are known to be associated with exposure to continuous filament fiber glass. Long-term epidemiologic studies do not show any increases in respiratory cancer or other disease among employees who manufacture this product. In 1987, the International Agency for Research on Cancer (IARC) classified continuous filament fiber glass as a Group 3 substance, “not classifiable as to its carcinogenicity to humans.” In 2001, IARC re-affirmed this designation. Because of the large diameter of continuous filament fibers, these fibers are not considered respirable.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

No additional information available

B: Component Analysis – Ecotoxicity – Aquatic Toxicity

n-pentane (109-60-0)

Material Name: Polyisocyanurate Foam Insulation

48 Hr EC50 Daphnia magna: 10.5 mg/L

Isopentane (78-78-4)

48 Hr EC50 Daphnia magna: 2.3 mg/L

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

A: General Product Information

This product, as supplied, is not regulated as a hazardous waste by the U.S. Environmental Protection Agency (EPA) under Resource Conservation and Recovery Act (RCRA) regulations. Comply with state and local regulations for disposal. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components

Disposal Instructions

Dipose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: SecurShield, SecurShield HD Coverboard, Composite
Shipping Symbols: N/A
Hazard Class: N/A
ID No.: N/A
Packing Group: N/A
Label: N/A
Special Provisions (172.102): N/A

Packaging Authorizations
a) Exceptions: N/A
b) Non-bulk PackagingN/A
c) Bulk Packaging: N/A

Quantity Limitations
a) Passenger, Aircraft, or Railcar:
b) Cargo Aircraft Only: N/A

Vessel Storage Requirements
a) Vessel Stowage: N/A
b) Other: N/A

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261): Not classified
CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity (RQ), N/A
SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance not listed

State Regulations:

N/A

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes:

Additional Hazard Rating Systems:

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle Construction Materials Incorporated by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.
.....

Material Safety Data Sheet

Date of Preparation: August 2011 MSDS 10-6210

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide Poly ISO 1, Mule-Hide Poly ISO 1-HD
Chemical Family: Polyisocyanurate
CAS Number: N/A Other Designations: Polyiso
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr, Beloit, WI 53511, Phone: 800-786-1492
Manufacturer: Hunter Panels LLC, 15 Franklin Street, Portland, ME 04101
Emergency Phone Number: CHEMTREC (USA) 800-424-9300
NFPA Hazard Rating: Health 1, Flammability 1, Reactivity 0
HMIS Hazard Rating: Health 1, Flammability 1, Reactivity 0

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS #	% wt	OSHA PEL (ppm)	TWA (ppm)
Polyisocyanurate	None	> 35	None Established	None Established
Proprietary additives	Proprietary	< 5	None Established	Non Established
n-Pentane	109-60-0	< 8	1000	600
Iso-Pentane	78-78-4	< 2	1000	600
Fibrous glass	65997-17-3	< 10	TLV 1 f/cc(Respirable)	TLV 5 mg/m^3 (Inhalable)
Calcium Carbonate	471-34-1	< 40	PEL 15 mg/m^3 (Total)	PEL 5 mg/m^3 (Respirable)

Section 3 - Hazards Identification

Potential Health Effects

Primary Entry Routes: Inhalation, skin contact
Target Organs:
Acute Effects
Inhalation: irritation.
Eye: irritation
Skin: irritation
Ingestion:
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure:
Chronic Effects: Possible allergic reaction of respiratory system (sensitization

Section 4 - First Aid Measures

Inhalation: Remove to fresh air.
Eye Contact: Flush with water for 15 minutes or until irritation ceases.
Skin Contact: Wash with soap and water.
Ingestion:
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians:
Special Precautions/Procedures: Persons who develop symptoms of allergy, irritation, respiratory problems, or puffiness around the eyes should be examined by a physician as soon as possible.

Section 5 - Fire-Fighting Measures

Flash Point: N/A
Flash Point Method: N/A
Burning Rate:
Autoignition Temperature: Not available.
LEL: N/A
UEL: N/A
Flammability Classification: Division 4
Extinguishing Media: In case of fire, use dry chemicals, carbon dioxide, foam, or water fog,

Unusual Fire or Explosion Hazards: None known.
Hazardous Combustion Products: Carbon monoxide, carbon dioxide.
Fire-Fighting Instructions: Fire-fighters should wear self-contained breathing apparatus.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Normal housekeeping.
Small Spills: N/A
Large Spills: N/A
Containment: N/A
Cleanup: N/A
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: No special equipment required.
Storage Requirements: Protect from moisture.
Regulatory Requirements: N/A

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Sufficient ventilation (when cutting) to keep exposure to nuisance dust below 5 mg/m^3.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Administrative Controls:
Respiratory Protection: OSHA approved respirator or dust mask when cutting.
Protective Clothing/Equipment: Protective gloves. Safety glasses or goggles, especially when cutting. Protective clothing and footwear.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance and Odor: Tan core foam with cellulose glass fiber facings-no odor.
Odor Threshold: N/A
Vapor Pressure: N/A
Vapor Density (Air=1): N/A
Formula Weight:
Specific Gravity (H_2O=1, at 4 °C): Unknown
pH: N/A

Water Solubility: Not soluble.
Other Solubilities:
Boiling Point: N/A
Freezing/Melting Point: N/A
Viscosity: N/A
Refractive Index: N/A
Surface Tension: N/A
% Volatile: N/A
Evaporation Rate: N/A

Section 10 - Stability and Reactivity

Stability: Stable.
Polymerization: Will not occur.
Chemical Incompatibilities: Acetone, MEK, THF, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide, and dimethyl formamide.
Conditions to Avoid: Open flame. Will burn if exposed to fire of sufficient heat and intensity.
Hazardous Decomposition Products: Toxic Smoke or vapors, such as carbon monoxide or carbon dioxide, may be released in a fire.

Section 11- Toxicological Information

Acute Toxicity

A: General Product Information

Dust from this product is a mechanical irritant, which means that it may cause temporary irritation or scratchiness of the throat, and/or itching of the eyes and skin.

n-pentane may be released at very low concentrations (well below their lower flammability limits) from these products when they are cut or crushed. These pentanes are nontoxic at levels below their lower flammability limits.

B: Component Analysis – LD50/LC50

n-pentane (109-60-0)

Oral LD50 Mouse: 12800 mg/kg

Carcinogenicity

A: General Product Information

The Occupational Safety and Health Administration (OSHA), National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), and American Conference of Governmental Industrial Hygienists (ACGIH) have not classified this product as a carcinogen.

B: Component Carcinogenicity

Continuous filament glass fibers (65997-17-3)

ACGIH: A4 – Not classifiable as a Human Carcinogen

IARC: Group 3 – Not classifiable (IARC Monograph 81 [2002] (listed under Man-made mineral fibres), Monograph 43 [1988]

Chronic Toxicity

Polyisocyanurate Foam: There is no evidence that dust from this material causes disease in man. There are no known animal studies of the chronic health effects of breathing dust from polyisocyanurate foam. However, a subchronic inhalation study showed no adverse respiratory effects in rats as a result of breathing 9 mg/m3 of dust from a similar foam (polyurethane foam) for 3 months (Thyssen et al., 1978). In, 1987, IARC designated polyurethane as Group 3, not classifiable as to carcinogenicity to humans (Monograph 19).

Continuous Filament Glass Fiber: No chronic helath effects are known to be associated with exposure to continuous filament fiber glass. Long-term epidemiologic studies do not show any increases in respiratory cancer or other disease among employees who manufacture this product. In 1987, the International Agency for Research on Cancer (IARC) classified continuous filament fiber glass as a Group 3 substance, “not classifiable as to its carcinogenicity to humans.” In 2001, IARC re-affirmed this designation. Because of the large diameter of continuous filament fibers, these fibers are not considered respirable.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

No additional information available

B: Component Analysis – Ecotoxicity – Aquatic Toxicity

n-pentane (109-60-0)

Material Name: Polyisocyanurate Foam Insulation

48 Hr EC50 Daphnia magna: 10.5 mg/L

Isopentane (78-78-4)

48 Hr EC50 Daphnia magna: 2.3 mg/L

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

A: General Product Information

This product, as supplied, is not regulated as a hazardous waste by the U.S. Environmental Protection Agency (EPA) under Resource Conservation and Recovery Act (RCRA) regulations. Comply with state and local regulations for disposal. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components

Disposal Instructions

Dipose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: SecurShield, SecurShield HD Coverboard, Composite
Shipping Symbols: N/A
Hazard Class: N/A
ID No.: N/A
Packing Group: N/A
Label: N/A
Special Provisions (172.102): N/A

Packaging Authorizations
a) Exceptions: N/A
b) Non-bulk PackagingN/A
c) Bulk Packaging: N/A

Quantity Limitations
a) Passenger, Aircraft, or Railcar:
b) Cargo Aircraft Only: N/A

Vessel Storage Requirements
a) Vessel Stowage: N/A
b) Other: N/A

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261): Not classified
CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity (RQ), N/A
SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance not listed

State Regulations:

N/A

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes:

Additional Hazard Rating Systems:

Disclaimer: The information contained in this document is based upon data that was supplied to Carlisle Construction Materials Incorporated by other companies and organizations. No warranty of merchantability or fitness for a particular purpose is expressed or implied regarding the accuracy or completeness of the data and/or information in this material safety data sheet.
.....

SAFETY DATA SHEET (SDS)

HCFC-Free

SECTION 1: Identification

PRODUCT(S) IDENTIFICATION: **Mule- Hide Poly ISO 2**

Article Name: Rigid polyisocyanurate foam panels
CAS Number: None Assigned
Common Name: Rigid Foam Insulation

PRODUCT DESCRIPTION AND USE:

Rigid foam insulation panels for installation as delivered over roof decks. ACFoam®-II consists of a flat or tapered closed-cell polyisocyanurate foam core bonded on both sides to a dark gray glass fiber reinforced felt facer. The thickness of the foam ranges from 0.5 to 4.5 inches. Intended to be covered by hot asphalt or coal tar BUR, modified bitumen, and single ply membrane system roof coverings.

MANUFACTURER: Atlas Roofing Corporation
2000 River Edge Parkway, Suite 800
Atlanta, Georgia 30328
Phone: 770-952-1442

SUPPLIER: Mule-Hide Products Co, Inc.
1195 Prince Hall Dr.
Beloit, WI 53511
Phone: 800-786-1492

MANUFACTURER HEALTH AND TECHNICAL CONTACTS:
From 8:00 AM to 5:00 PM (respective time zone); call one of the following numbers for the location closest to you:

Camp Hill, Pennsylvania	800-688-1476	LaGrange, Georgia	800-955-1476
East Moline, Illinois	800-677-1476	Phoenix, Arizona	800-477-1476
Northglenn, Colorado	800-288-1476	Diboll, Texas	800-766-1476
Etobicoke, Ontario, Canada	888-647-1476	Delta, British Columbia, Canada	855-267-1476

In the event of a chemical emergency after 5:00 PM and on weekends call CHEMTREC at 800-424-9300 or in Canada call CANUTEC at 613-996-6666.

SECTION 2: Hazard(s) Identification

EMERGENCY OVERVIEW:

	Health	Fire	Reactivity	Degree of Hazard
HMIS Rating	1	1	0	0 - Minimal (insignificant)
NFPA Rating	1	1	0	1 – Slight
				2 – Moderate
				3 – Serious (high)
				4 – Severe (extreme)
				5 – Chronic Health Effort(s)

No unusual conditions are expected from this product. Freshly expanded or heated foam may off-gas some pentane-blowing agent, which is heavier than air and may accumulate to ignitable concentrations if stored inside a

sealed container or within confined areas. Ignitable atmospheres have concentrations that exceed inhalation exposure limits for workers, further reinforcing the need for ventilation when foam is freshly expanded.

With the exception of the blowing agent, this product does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing, sanding, or machining that result in the generation of airborne particulates (dusts). Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. Inhalation of high amounts of dust over long periods may overload lung clearance mechanisms and make lungs more vulnerable to respiratory disease. [See Section 3 of this SDS for other exposure limit standards for the product ingredients.]

Canadian users: LD50 and LC50 data are listed below for the constituent(s) that are available.

	LC50	LD50	Hodge & Sterner classes	
	mg/(m3 air)	mg/(kg body wgt)	(inhalation)	(oral)
Pentane	364,000 (rat, inh, 4hr)	446 (mouse, i.v.)	relatively harmless	insufficient data
Formaldehyde	400 (mouse, inh, 2hr)	42 (mouse, oral) 100 (rat, oral)	moderately toxic	moderately toxic

POTENTIAL HEALTH EFFECTS:

Primary Means of Exposure: Inhalation of particulates
Secondary Means of Exposure: Eye and skin contact with particulates and inhalation of vapors

INHALATION HEALTH HAZARDS:

For polyiso foam (generated dust and residual vapor) and for organics in facers (generated dusts)

Acute: Dust may cause transient mechanical irritation of the upper respiratory tract. Workplace exposures to residual pentane vapors from this product are expected to be below levels of any health risk. Overexposure to high concentrations of pentane can cause narcotic effects. Signs and symptoms of overexposure to pentane include headache, nausea, dizziness, difficulty walking, or sleepiness. Studies have shown that short-term (10-minute) exposures to pentane concentrations as high as 5,000 ppm (11,750 mg/m^3) produced no symptoms. Workplace exposure limits for pentane and other organic components are provided in table below.

Chronic: There is no evidence that dusts generated from these products cause disease in humans. Facer dusts containing carbon black pigment are not analogous to the raw carbon black powders for which human carcinogenicity is suspected. No chronic effects are known for exposures to pentane vapor.

For continuous filament glass fibers in facers (generated dust)

Acute: Airborne fragments of glass fibers may cause mechanical irritation of the upper respiratory tract, particularly mouth, nose and throat; glass dust may cause transient irritation of the upper respiratory tract. Workplace exposure limits are provided in table below.

Chronic: No chronic health effects are known to be associated with exposure to glass fibers. Results from epidemiological studies have not shown any increase in respiratory disease or cancer. The International Agency for Research on Cancer has classified continuous filament fiberglass "Not Classifiable as to Carcinogenicity to Humans" (Group 3).

EYE CONTACT HEALTH HAZARDS:

Acute: Mechanical irritation, redness, tearing, and blurred vision can occur if dusts generated from these products come into contact with eyes.

Chronic: None known.

SKIN CONTACT HEALTH HAZARDS:

Acute: Direct contact with rough-cut foam or felt facers can cause mechanical abrasion cuts or puncture to fingers, hands or exposed skin.

Chronic: None known.

SIGNS AND SYMPTOMS OF EXPOSURE:

Irritation of the upper respiratory tract, eyes, and/or skin.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Any condition generally aggravated by mechanical irritants in the air or on the skin. Specific data are not available which address medical conditions that are generally recognized as being aggravated by exposure to this product.

CARCINOGENICITY:

Ingredient:	Textile Fibrous Glass
NTP:	Not Listed
IARC:	Not Classifiable – Group 3
OSHA:	Not Listed
Mutagenicity:	None
Teratogenicity:	None
Reproductive Toxicity:	None
California Proposition 65:	Known to the State of California to Cause Cancer. This warning is provided in accordance with the California Safe Drinking Water and Toxic Enforcement Act of 1986.

SECTION 3: Composition and Ingredient Information

COMMON NAME	CHEMICAL NAME	WEIGHT % IN ARTICLE‡	CAS NUMBER
Polyiso foam, containing:	isocyanurate homopolymer	78	None
Residual blowing agent	normal pentane	< 4.7	109-66-0
Felt facer (composite of wood pulp and glass fibers), containing:		22	None
Fiberglass	continuous filament glass fibers	5	65997-17-3
Pigment	carbon black	1	1333-86-4

‡Weight % based on 1-inch foam thickness.

AIRBORNE EXPOSURE LIMITS:

Constituent or Category	OSHA PEL	ACGIH TLV	NIOSH REL
	(mg/m^3)	(mg/m^3)	(mg/m^3)
Nuisance dusts NOS containing no asbestos and <1% crystalline silica	15 TWA total 5 TWA respirable	10 TWA	Not applicable
Fiberglass dust	see nuisance dusts	5 TWA	Not applicable
Carbon black	3.5 TWA	3.5 TWA	3.5 TWA 1750 IDLH
n-Pentane	2950 TWA	1410 TWA	350 TWA 1800 Ceiling 3525 IDLH
Formaldehyde	0.9 TWA 2.5 STEL	0.4 TWA	0.02 TWA 0.12 STEL 25 IDLH

SECTION 4: First Aid Measures

FIRST AID PROCEDURES:

Inhalation: Remove to fresh air. Drink water to clear throat and blow nose to remove dust.
Skin: Wash with soap and cool running water.

Eyes: Flush eyes with running water for at least 15 minutes. Do not rub or wipe eyes. If irritation persists, consult a medical professional.

Ingestion: Product is not intended to be ingested or eaten. If product is ingested, irritation of the gastrointestinal tract may occur, and should be treated symptomatically. Do not induce vomiting. Rinse mouth with water to remove particles, and drink plenty of water to help reduce the irritation. [No chronic effects are expected following ingestion.]

Note to Physician: This product is a mechanical irritant. It is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.

SECTION 5: Fire Fighting Measures

The product is a solid article that will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. It should be installed with a 15-minute thermal barrier between it and the structure's interior. Under certain fire conditions, combustible gases can be generated, creating rapidly spreading, high-intensity flames and dense, black smoke. Burning of this product can produce irritating and potentially toxic fumes and gases, including carbon monoxide and carbon dioxide; other undetermined hydrocarbon fractions could be released in small quantities.

Flashpoint:	Not applicable (product is not a liquid).
Auto-ignition temperature:	Not determined
Extinguishing media:	Water spray/fog, CO_2, dry chemical (consider media appropriate for surrounding materials).
Respirator for fire-fighting:	Self-contained breathing apparatus (SCBA).

Pentane vapors may be emitted from freshly produced foam or when product is heated. Pentane concentrations between the lower and upper explosive limits (LEL and UEL) may accumulate under unique circumstances inside a sealed container or within confined areas. If such concentrations are provided a source of ignition, there may be a very high rate of flame propagation.

Pentane:	Flashpoint	≤ -37°C	Vapor pressure	= 514 mm Hg at 25°C
	Boiling point	= 28 to 49°C	LEL	= 1.5% (35,000 mg/m3)
			UEL	= 7.8%
	Vapor density	= 2.49		

SECTION 6: Accidental Release Measures

Do not discard residues into sewers, storm sewers, or surface waters. If accidentally released to a water body, material will float and disperse with wind and current; contain the material with booms and remove either manually or with a vacuum truck.

If accidentally released to land, scoop up material and put into suitable container for disposal.

Chemicals in this material are not expected to cause harm to aquatic or terrestrial plants or animals; however, fish or other animals may eat the product, which could obstruct their digestive tracts.

Be a good steward of the environment and clean up residues (some components of the product are not biodegradable).

SECTION 7: Handling and Storage

Storage: Store in a dry, well-ventilated area. Assure storage containers or areas and shipping containers are adequately ventilated. No Smoking—No Matches—No Lighters—No Welding rules should be enforced. Install according to manufacturer's recommendations.

Installation Procedure: Cutting of product should be done in a manner to reduce or control generation of airborne dusts. Avoid unnecessary dust exposures when cutting or abrading by using adequate local or general ventilation. Avoid dust contact with ignition sources. Handle product using good industrial hygiene and safety practices.

SECTION 8: Exposure Control - Personal Protection

Respiratory Protection: If a respiratory tract irritation occurs or if any dust exposure limit is exceeded, use a respirator such as 3M Model 8271 or Model 8210, or equivalent for protection against nuisance dusts. When normal ventilation is provided to work area, no respiratory protection is needed for pentane vapor.

Protective Clothing: To avoid skin irritation from excessive dust generated during cutting operations, wear long-sleeved, loose fitting clothing, long pants, and gloves.

Eye Protection: Goggles or safety glasses with side shields are recommended.

Work Area Cleanup: Pick up large pieces; do not wash down drain. Sweep or vacuum smaller pieces into a waste container for disposal. If needed, use water spray to wet down and minimize dust generation. Do not dry sweep dust accumulation or use compressed air for cleanup.

Hygienic Practices: Exposed skin areas should be washed with soap and cool water after working with product. Clothing should be laundered separately from other clothes.

SECTION 9: Physical/Chemical Characteristics

The following applies to the product (article), not to pure forms of individual constituents of the product:

Appearance: White or cream-colored foam solid with a dark gray glass fiber reinforced felt facing on both sides.

PROPERTY		PROPERTY	
Boiling Point (°F):	NA	Specific Gravity:	<1
Melting Point (°F):	>250	Solubility (Water):	Insoluble
Vapor Pressure:	NA	Vapor Density (Air=1):	NA
Percent Volatile By Volume:	<1	Evaporative Rate:	NA
pH:	NA	Odor:	Negligible

NA=not applicable

SECTION 10: Stability and Reactivity

Stability: Stable. Service temperature range: -100 to 250°F. To prevent structural deterioration, avoid contact with acetone, methyl ethyl ketone, tetrahydrofuran, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide, and dimethyl formamide.

Hazardous Decomposition Products: None identified.

Hazardous Polymerization: Will not occur.

SECTION 11: Toxicological Information

Extensive medical-scientific research has been conducted regarding the health aspects of fiber glass over the past 50 years. The International Agency for Research on Cancer (IARC), and agency of the World Health Organization (WHO), at a meeting in June 1987, reviewed all of the significant research on the health effects attributed to fiber glass.

IARC determined that the data from both human and animal studies was inadequate to classify continuous filament glass fibers such as used in fiber glass reinforcement products, as carcinogenic to humans.

No chronic health effects are known to be associated with exposure to glass fibers. Results from epidemiological studies have not shown any increase in respiratory disease or cancer. The International Agency for Research on Cancer has classified continuous filament fiberglass "Not Classifiable as to Carcinogenicity to Humans" (Group 3).

SECTION 12: Ecological Information

Chemicals in this material are not expected to cause harm to aquatic or terrestrial plants or animals; however, fish or other animals may eat the product, which could obstruct their digestive tracts.
Be a good steward of the environment and clean up residues (some components of the product are not biodegradable).

This product is not manufactured with, nor does it contain any Class 1 Ozone depleting chemicals as defined by EPA in Title VI of the Clean Air Act Amendments of 1990 40 CFR Part 82, Protection of Stratospheric Ozone.

SECTION 13: Disposal Considerations

This product, if discarded as supplied, is not considered a hazardous waste under RCRA (40 CFR 261) and may be placed directly into receptacles that will transport the waste to a municipal waste, industrial waste, or demolition waste landfill. If contact with a contaminating substance alters the material, it is the user's responsibility to determine at the time of disposal whether it meets RCRA criteria for hazardous waste. Dispose in accordance with federal, state and local regulations.

SECTION 14: Transportation Information

Transportation Regulations: This product is not regulated as a hazardous material in transportation.

National Motor Freight Classification (NMFC): 157320, Class 150

SECTION 15: Regulatory Information

TSCA: All chemicals in this product are listed on the TSCA Inventory. TSCA 12(b) export notification requirements do not apply to this product.

SARA TITLE III: There is no Section 302 extremely hazardous substance in this product. Reporting requirements under Sections 311, 312, or 313 do not apply. [Diisocyanate precursors do not remain in the polymer foam of this product.]

All chemicals and component categories found on state lists are addressed in this SDS.

This product has been classified in accordance with the hazard criteria of Canada's *Controlled Products Regulations* and the SDS contains all of the information required by said regulations. All chemical components are on Canada's Domestic Substances List (DSL). Pentane and carbon black are the only constituents on Canada's Ingredients Disclosure List (IDL) that exceed threshold concentrations.

SECTION 16: Other Information

Safety Data Sheet (SDS) prepared by: Atlas Roofing Corporation
2000 River Edge Parkway, Suite 800
Atlanta, Georgia 30328
Phone: 770-952-1442

Original Prepared:	January 2002
Revision Date:	July 2013
Expiration Date:	July 2016
Revision:	Conversion to SDS format

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name **Glass Mat Faced Gypsum Panels**

Product use Products accommodate a wide range of wall, floor, ceiling and roof applications

Product list See Product List found in Section 16

Manufacturer information
Georgia-Pacific Gypsum LLC
Georgia-Pacific Gypsum II LLC
133 Peachtree Street, NE
Atlanta, GA 3030
MSDS Request 404.652.5119
Technical Information 800.225.6119
Chemtrec - Emergency 800.424.9300

2. Hazards Identification

Emergency overview CAUTION!

Cutting, sanding, or otherwise working with this product may generate large amounts of dust. Dust can be irritating to the eyes, skin, and respiratory system.

Potential health effects

Eyes Dust may cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin Dust and glass fibers may produce itching, rash, and redness. Handling can cause dry skin.

Inhalation Dust may cause respiratory tract irritation.

Ingestion Not applicable under normal conditions of use. May result in obstruction and temporary irritation of the digestive tract.

3. Composition / Information on Ingredients

Components	CAS #	Percent/Wt
GYPSUM (CALCIUM SULFATE, DIHYDRATE)	10101-41-4	60 - 100
VERMICULITE (NON-ASBESTOS CONTAINING)**	1318-00-9	3 - 7
CRYSTALLINE SILICA (QUARTZ)*	14808-60-7	1 - 5
CONTINUOUS FILAMENT GLASS FIBER	65997-17-3	1 - 5

Composition comments ** Found in products in List B, Section 16 of this MSDS.

Gypsum (calcium sulfate, dihydrate) and vermiculite contain naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

*The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product; however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Skin contact For skin contact, wash immediately with soap and water. Get medical attention if irritation develops or persists.

Inhalation Remove to fresh air. If symptoms persist, obtain medical attention.

Ingestion May result in obstruction and irritation if ingested. Get medical attention.

5. Fire Fighting Measures

Flammable properties Not flammable by OSHA/WHMIS criteria.

Extinguishing media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire fighting equipment/instructions Firefighters should wear full protective clothing including self contained breathing apparatus.

Explosion data

Sensitivity to static discharge Not applicable.

Sensitivity to mechanical impact Not applicable.

Hazardous combustion products May include, and are not limited to: calcium oxide and sulfur dioxide.

6. Accidental Release Measures

Personal precautions Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.

Environmental precautions Keep out of drains, sewers, ditches, and waterways.

Methods for containment Pick up large pieces, then place in a suitable container. Minimize dust generation.

Methods for cleaning up Sweep up or gather material and place in an appropriate container for disposal. Utilize wet methods, if appropriate, to minimize dust.

7. Handling and Storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Use only in well-ventilated areas. Handle and open container with care. Wear appropriate NIOSH approved dust mask or filtering facepiece if dust is generated. Do not eat or drink while using the product. Wash hands before eating, drinking, or smoking.

Storage Store level and keep dry. Dewpoint or other conditions causing the presence of moisture can damage the product during storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	0.025 mg/m3	(Respirable fraction)
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)	TWA	10 mg/m3	(Inhalable fraction)

U.S. - OSHA

Components	Type	Value	Form
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)	TWA	5 mg/m3	(Respirable fraction)
		15 mg/m3	(Total dust)

US OSHA Table Z-3: Caluculated Time Weighted Average (TWA) (mg/m3)

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	10 mg/m3	Total dust.

US OSHA Table Z-3: Caluculated Time Weighted Average (TWA) (Non-standard unit)

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	3.3 mg/m3	(Respirable fraction)

Exposure guidelines	*Exposure limits for CRYSTALLINE SILICA - The US OSHA exposure limits 8 hour TWA for CRYSTALLINE SILICA (QUARTZ) are calculated from the following equations: 30/(%SiO2+2) mg/m3 for total dust; and 10/(%SiO2+2) mg/m3 for the respirable fraction. *The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product; however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.
Engineering controls	Score and snap method recommended. When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.
Personal protective equipment	
Eye / face protection	Safety glasses or goggles are recommended when using this product. Ensure compliance with OSHA's PPE standard (29 CFR 1910.132 and .133) for eye and face protection. Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151(c)).
Skin protection	Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA's PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151 (c)).
Respiratory protection	A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

9. Physical & Chemical Properties

Appearance	Gypsum boards
Color	Facing color varies
Form	Solid
Odor	Low odor
Odor threshold	Not available.
pH	6 - 8
Melting point	Not available.
Boiling point	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability	Not flammable
Flammability limits in air, upper, % by volume	Not applicable
Flammability limits in air, lower, % by volume	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Specific gravity	2.2 - 2.4
Partition coefficient (n-octanol/water)	Not available.
Solubility (water)	0.2 % @ 22°C
Auto-ignition temperature	Not applicable

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions of reactivity	Contact with strong acids produces carbon dioxide.
Incompatible materials	Acids.
Hazardous decomposition products	May include and are not limited to: calcium oxide and sulfur dioxide.

11. Toxicological Information

Routes of exposure Skin contact. Eye contact. Inhalation.

Toxicological information No toxicological data available for this product. Toxicological information for components of this product is listed below.

Toxicological information (Ingredients)

GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS # 10101-41-4)

Toxicology Data - Selected LD50s and LC50s

Oral LD50 Mouse: 5824 mg/kg
Oral LD50 Rat: 3000 mg/kg

Sensitization Not expected to be hazardous by OSHA/WHMIS criteria.

Chronic effects Not expected to be hazardous by OSHA/WHMIS criteria.

Carcinogenicity Not expected to be hazardous by OSHA/WHMIS criteria.

Exposure to respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by IARC and NTP as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to a respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of respirable crystalline silica exposure and the length of time (usually years) of exposure.

ACGIH Carcinogens

CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7) US ACGIH Threshold Limit Values: A2 carcinogen

IARC Monographs. Overall Evaluation of Carcinogenicity

CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7) IARC Monographs: Overall evaluation 1 Volume 68, Volume 100C

Mutagenicity Not expected to be hazardous by OSHA/WHMIS criteria.

Reproductive effects Not expected to be hazardous by OSHA/WHMIS criteria.

Teratogenicity Not expected to be hazardous by OSHA/WHMIS criteria.

Synergistic materials Not available.

12. Ecological Information

Ecotoxicity Not considered to be harmful to aquatic life.

Ecotoxicological data

Components		Species	Test Results
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)			
Fish	LC50	Fish	2980 mg/l, 96 Hours

13. Disposal Considerations

Disposal instructions Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. Transport Information

DOT

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

Section 313 hazardous chemical No

Canadian regulations

Canada WHMIS Ingredient Disclosure: Threshold limits

CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7) 1 %

WHMIS status Controlled

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Product list

Product List A

DensArmor Plus® High Performance Interior Panel

DensArmor Plus® Fireguard® Abuse-Resistant Panels

DensArmor Plus® Fireguard® Impact-Resistant Panels

DensArmor Plus® Fireguard® Interior Panels

DensDeck® DuraGuard Roof Board

DensDeck® Prime Roof Board

DensDeck® Roof Board

DensDeck® DuraGuard Fireguard® Roof Board

DensDeck® Prime Fireguard® Roof Board

DensDeck® Fireguard® Roof Board

DensGlass® Fireguard® Sheathing

DensGlass® Shaftliner

DensGlass® Sheathing

DensShield® Fireguard® Tile Backer

DensShield® Tile Backer

Fire-Rated GreenGlass® Prime Roof Board

Fire-Rated GreenGlass® Sheathing

Fire-Rated GreenGlass® Tile Backer

Fire-Rated GreenGlass® Roof Board

Fire-Rated GreenGlass® Interior Panels

GreenGlass® Prime Roof Board

GreenGlass® Roof Board

GreenGlass® Sheathing

GreenGlass® Tile Backer

GreenGlass® Interior Panels

....

Product List B

DensArmor Plus® Fireguard C® High-Performance Interior Panels

GreenGlass® Shaftliner

....

HMIS® ratings Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings Health: 1
Flammability: 0
Instability: 0

Disclaimer

The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Georgia-Pacific and its subsidiaries make no warranty of any kind, expressed or implied, concerning the accuracy or completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. Georgia-Pacific and its subsidiaries will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.

Prepared by

Georgia-Pacific LLC
404.652.5119

MATERIAL SAFETY DATA SHEET
SECUROCK® Gypsum-Fiber Roof Board

SECTION 1
CHEMICAL PRODUCT AND IDENTIFICATION

United States Gypsum Company 550 West Adams Street Chicago, Illinois 60661-3637 A Subsidiary of USG Corporation	Product Safety: 1 (800) 507-8899 www.usg.com Version Date: January 1, 2011 Version: 5

PRODUCT(S)	SECUROCK® Gypsum-Fiber Roof Board
CHEMICAL FAMILY / GENERAL CATEGORY	Roof Board
SYNONYMS	Fiber-Reinforced Gypsum Panels Product

SECTION 2
HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:
ΔWARNING!
This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. This product does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing, sanding or machining which result in the generation of airborne particulate. This product contains quartz (crystalline silica) as a naturally occurring contaminant.

POTENTIAL HEALTH EFFECTS (See Section 11 for more information)

ACUTE :

Inhalation	Exposure to dust generated during the handling or use of the product may cause temporary irritation to eyes, skin, nose, throat, and upper respiratory tract. Persons subjected to large amounts of this dust will be forced to leave area because of nuisance conditions such as coughing, sneezing and nasal irritation. Labored breathing may occur after excessive inhalation. If respiratory symptoms persist, consult physician.
Eyes	Dust can cause temporary mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.
Skin	None known.
Ingestion	None known.

CHRONIC:

Inhalation	The concentration of respirable crystalline silica measured in bulk samples of USG gypsum was less than 0.1 Wt.%. Industrial hygiene testing, following the NIOSH Method 7500, did not detect respirable crystalline silica in dust created during the cutting of USG gypsum wallboard panels by both the recommended score and snap technique and with the use of a power saw in a 10ft by 10ft room. Panels do not release respirable dust in their installed state and therefore do not present any known health hazards when installed and properly maintained. Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration.

Eyes	None known.
Skin	None known.
Ingestion	None known.

TARGET ORGANS: Eyes, skin and respiratory system.

PRIMARY ROUTES OF ENTRY: Inhalation, eyes and skin contact.

CARCINOGENICITY CLASSIFICATION OF INGREDIENT(S) All substances listed are associated with the nature of the raw materials used in the manufacture of this product and are not independent components of the product formulation. All substances, if present, are at levels well below regulatory limits. See Section 11: Toxicology Information for detailed information.

MATERIAL	IARC	NTP	ACGIH	CAL- 65
Crystalline silica	1	1	A2	Listed
Glass Fiber	3	2	A3	Not Listed

IARC - International Agency for Research on Cancer: 1- Carcinogenic to humans; 2A – Probably carcinogenic to humans; 2B – Possibly carcinogenic to humans; 3 - Not classifiable as a carcinogen; 4 – Probably not a carcinogen

NTP – National Toxicology Program (Health and Human Services Dept., Public Health Service, NIH/NIEHS): 1- Known to be carcinogen; 2- Anticipated to be carcinogens

ACGIH – American Conference of Governmental Industrial Hygienists: A1 – Confirmed human carcinogen; A2 – Suspected human carcinogen; A3 – Animal carcinogen; A4 - Not classifiable as a carcinogen; A5 – Not suspected as a human carcinogen

CAL-65 – California Proposition 65 “Chemicals known to the State of California to Cause Cancer”

Respirable crystalline silica: IARC: Group 1 carcinogen, NTP: Known human carcinogen. The weight percent of crystalline silica given represents total quartz and not the respirable fraction. The weight percent of respirable silica has not been measured in this product.

POTENTIAL ENVIRONMENTAL EFFECTS: Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect. (See Section 12 for more information.)

SECTION 3
COMPOSITION, INFORMATION ON INGREDIENTS

MATERIAL	WT%	CAS #
Gypsum or Calcium Sulfate Dihydrate ($CaSO_4 \cdot 2H_2O$)	>78	13397-24-5/10101-41-4
Cellulose	<10	9004-34-6
Polyhydrogenmethylsiloxane	<1	63148-57-2
Crystalline Silica	<5	14808-60-7^
May Contain:		[ ]
Glass Fiber	<5	65997-17-3

All ingredients of this product are included in the U.S. Environmental Protection Agency’s Toxic Substances Control Act Chemical Substance Inventory and the Canadian Domestic Substances List (DSL).

^The weight percent for silica represents total quartz and not the respirable fraction.

SECTION 4
FIRST AID MEASURES

FIRST AID PROCEDURES	
Inhalation	Remove to fresh air. Leave the area of exposure and remain away until coughing and other symptoms subside. Other measures are usually not necessary, however if conditions warrant, contact physician.
Eyes	In case of contact, do not rub or scratch your eyes. To prevent mechanical irritation, flush thoroughly with water for 15 minutes. If irritation persists, consult physician.
Skin	Wash with mild soap and water. If irritation persists, consult physician.
Ingestion	This product is not intended to be ingested or eaten. If gastric disturbance occurs, call physician.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma. Pre-existing skin diseases such as, but not limited to, rashes and dermatitis.

NOTES TO PHYSICIAN: Treatment should be directed at the control of symptoms and the clinical condition.

SECTION 5
FIRE FIGHTING MEASURES

General Fire Hazards	None known
Extinguishing Media	Water or use extinguishing media appropriate for surrounding fire.
Special Fire Fighting Procedures	Wear appropriate personal protective equipment. See section 8.
Unusual Fire/ Explosion Hazards	None known
Hazardous Combustion Products	None known

Flash Point	Not Determined	**Auto Ignition**	Not Applicable
Method Used	Not Applicable	**Flammability Classification**	Not Applicable
Upper Flammable Limit (UFL)	Not Determined		
Lower Flammable Limit (LFL)	Not Determined	**Rate of Burning**	Not Applicable

SECTION 6
ACCIDENTAL RELEASE MEASURES

CONTAINMENT: Collect panels from spillage and if not damaged or contaminated by foreign material, panels may be reclaimed.

CLEAN-UP: Use normal clean up procedures. No special precautions.

DISPOSAL: Follow all local, state, provincial and federal regulations. Never discharge large releases directly into sewers or surface waters.

SECTION 7
HANDLING AND STORAGE

HANDLING: Avoid dust contact with eyes and skin. Wear the appropriate eye and skin protection against dust (See Section 8). Minimize dust generation and accumulation. Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8). Use good safety and industrial hygiene practices. When moving board with a forklift or similar equipment, it is essential that the equipment be rated capable of handling the loads. The forks should always be long enough to extend completely through the width of the load. Fork spacing between supports should be one half the length of the panels or base being handled so that a maximum of 4' extends beyond the supports on either end.

Follow traditional building practices; such as management of water away from the interior of the structure to avoid the growth of mold, mildew and fungus. Remove any building products suspected of being exposed to sustained moisture and considered conducive to mold growth from the jobsite.

Gypsum panels are very heavy awkward loads posing the risk of severe back injury. Use proper lifting techniques.

STORAGE: Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities (see Section 10). Protect product from physical damage.

Protect from weather and prevent exposure to sustained moisture.

Gypsum Association literature recommends storing board flat to avoid damaging edges, warping the board and the potential safety hazards of the board falling over. However, in other situations, storing the board flat may cause a tripping hazard or exceed floor limit loads. If stacking board vertically, leave at least 4 inches from the wall to decrease the risk of falling board and no more than 6 inches to avoid too much lateral weight against the wall.

SECTION 8
EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	WT%	TLV (mg/m^3)	PEL(mg/m^3)
Gypsum or Calcium Sulfate Dihydrate ($CaSO_4 \cdot 2H_2O$)	>78	10	15(T)/5(R)
Cellulose	<10	10	15(T)/5(R)
Polyhydrogenmethylsiloxane	<1	(NE)	(NE)
Crystalline Silica	<5	0.025(R)	0.1(R)
May Contain:		[	]
Glass Fiber	<5	1 f/cc(R)	15(T)/5(R)

(T)–Total; (R)–Respirable; (NE)-Not Established; (C)-Ceiling; (STEL)-Short-term exposure limit
(F)-Fume; (Du)-Dust; (M)-Mist
ppm-part per million; f/cc-fiber per cubic centimeter; mppcf- million particles per cubic foot

ENGINEERING CONTROLS: Provide ventilation sufficient to control airborne dust levels. If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits. Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits.

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA-approved respirator equipped with particulate cartridges when dusty in poorly ventilated areas, and if TLV is exceeded. A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If engineering controls are not possible, wear a properly fitted NIOSH/MSHA-approved particulate respirator.

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face	Wear eye protection, safety glasses or goggles, to avoid possible eye contact.

Skin	Wear gloves and protective clothing to prevent repeated or prolonged skin contact.
General	Selection of Personal Protective Equipment will depend on environmental working conditions and operations.

SECTION 9
PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Paper with gray to off white core	**Vapor Density (Air = 1)**	Not Applicable
Odor	Low to no odor	**Specific Gravity (H_2O = 1)**	2.32 – 2.96
Odor Threshold	Not Determined	**Solubility in water (g/100g)**	0.26/100g
Physical State	Solid	**Partition Coefficient**	Not Applicable
pH @ 25 º C	~ 7	**Auto-ignition Temp**	Not Determined
Melting Point	Not Applicable	**Decomposition Temp**	2650ºF/1450ºC
Freezing Point	Not Applicable	**Viscosity**	Not Applicable
Boiling Point	Not Applicable	**Particle Size**	Varies
Flash Point	Not Determined	**Bulk Density**	~ 55 lb/ft3
Evaporation Rate (BuAc = 1)	Not Applicable	**Molecular Weight**	~ 172
Upper Flammable Limit (UFL)	Not Determined	**VOC Content**	Zero g/L
Lower Flammable Limit (LFL)	Not Determined	**Percent Volatile**	Zero
Vapor Pressure (mm Hg)	Not Applicable		

SECTION 10
CHEMICAL STABILITY AND REACTIVITY

STABILITY	Stable.
CONDITIONS TO AVOID	Contact with incompatibles (see below).
INCOMPATIBILITY	None known.
HAZARDOUS POLYMERIZATION	None known.
HAZARDOUS DECOMPOSITION	None known.

SECTION 11
TOXICOLOGICAL INFORMATION

ACUTE EFFECTS: The acute oral toxicity study [OECD TG 420] of calcium sulfate dihydrate showed that this chemical did not cause any changes even at 2,000 mg/kg b.w. Therefore, the oral LD50 value was more than 2,000-mg/kg b.w. for female rats. Gypsum paste applied experimentally to the eyes of rabbits was not an irritant. Gypsum dust particulate has shown an irritant action on mucous membranes of the respiratory tract and eyes. The sulfate ion has caused gastro-intestinal disturbance in humans following large oral doses. Limited studies involving the repeated inhalation of an (unspecified) calcium sulfate failed to identify any particular target organs in monkeys, rats and hamsters. No evidence of mutagenicity was found in Ames bacterial tests.

CHRONIC EFFECTS / CARCINOGENICITY: Panels do not release respirable dust in their installed state and therefore do not present any known health hazards when installed and properly maintained.

Crystalline Silica: Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. The weight percent of respirable crystalline silica may not have been measured in this product. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. Smoking in combination with silica exposures increases the risk of cancer. The risk of developing silicosis is dependent upon the exposure intensity and duration.

In June, 1997, IARC classified crystalline silica (quartz and cristobalite) as a human carcinogen. In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.

IARC states that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

SECTION 12
ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY: This product has no known adverse effect on ecology. Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect.

Ecotoxicity value	Not determined.

SECTION 13
DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of material in accordance with federal, state, and local regulations. Never discharge directly into sewers or surface waters. Consult with environmental regulatory agencies for guidance on acceptable disposal practices.

SECTION 14
TRANSPORT INFORMATION

U.S. DOT INFORMATION: Not a hazardous material per DOT shipping requirements. Not classified or regulated.

Shipping Name	Same as product name.
Hazard Class	Not classified.
UN/NA #	None. Not classified.
Packing Group	None.
Label (s) Required	Not applicable.
GGVSec/MDG-Code	Not classified.
ICAO/IATA-DGR	Not applicable.
RID/ADR	None.
ADNR	None.

SECTION 15
REGULATORY INFORMATION

UNITED STATES REGULATIONS

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory.

MATERIAL	WT%	302	304	313	CERCLA	CAA Sec. 112	RCRA Code
Gypsum or Calcium Sulfate Dihydrate (CaSO4•2H2O)	>78	NL	NL	NL	NL	NL	NL
Cellulose	<10	NL	NL	NL	NL	NL	NL
Polyhydrogenmethylsiloxane	<1	NL	NL	NL	NL	NL	NL
Crystalline Silica	<5	NL	NL	NL	NL	NL	NL
May Contain:		[					]
Glass Fiber	<5	NL	NL	NL	NL	NL	NL

Key : NL = Not Listed

SARA Title III Section 302 (EPCRA) Extremely Hazardous Substances: Threshold Planning Quantity (TPQ)

SARA Title III Section 304 (EPCRA) Extremely Hazardous Substances: Reportable Quantity (RQ)

SARA Title III Section 313 (EPCRA) Toxic Chemicals: X= Subject to reporting under section 313

CERCLA Hazardous Substances: Reportable Quantity (RQ)

CAA Section 112 (r) Regulated Chemicals for Accidental Release Prevention: Threshold Quantities(TQ)

RCRA Hazardous Waste: RCRA hazardous waste code

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of Controlled Product regulations and the MSDS contains all the information required by the Controlled Products Regulations. All ingredients of this product are included in the Canadian Domestic Substances List (DSL).

MATERIAL	WT%	IDL Item #	WHMIS Classification
Gypsum or Calcium Sulfate Dihydrate (CaSO4•2H2O)	>78	Not Listed	Not Listed
Cellulose	<10	Not Listed	Not Listed
Polyhydrogenmethylsiloxane	<1	Not Listed	Not Listed
Crystalline Silica	<5	1406	D2A
May Contain:		[	]
Glass Fiber	<5	Not Listed	Not Listed

IDL Item#: Canadian Hazardous Products Act – Ingredient Disclosure List Item #

WHMIS Classification: Workplace Hazardous Material Information System

Risk and Safety Phrases defined by European Union Directive 67/548/EEC (Annex III and IV)

R-Phrase(s): R36/37/38

S-Phrase(s): S51 S38 S39

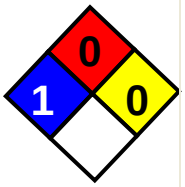
SECTION 16
OTHER INFORMATION

Label Information

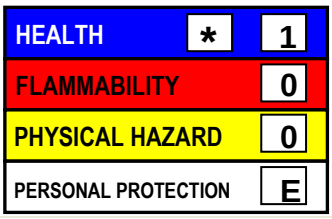
Δ WARNING!
Dust can cause irritation to eyes, skin and respiratory tract. Wear eye, skin and respiratory protection as necessary per working conditions. If eye contact occurs flush with water for 15 minutes. Do not ingest. If ingested, call physician. If cutting board with a power tool, use a wet or vacuum saw to reduce the amount of dust generated. Panels are heavy and can fall over, causing serious injury or death. Avoid creating a tripping hazard and do not exceed floor limit loads. Product safety information: 800-507-8899 or usg. com. Customer Service: 800 USG-4-YOU (800 874-4968). KEEP OUT OF REACH OF CHILDREN.

INFORMATION FOR HANDLING AND IDENTIFICATION OF CHEMICAL HAZARDS

NFPA Ratings:	
Health:	1
Fire:	0
Reactivity:	0



HMIS Ratings:	
Health:	1
Fire:	0
Reactivity:	0



0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

E – Safety glasses, gloves and dust respirator; * - Contains silica

Key/Legend

ANSI	American National Standards Institute
ACGIH	American Conference of Governmental Industrial Hygienists
CAA	Clean Air Act
CAS	Chemical Abstracts Service (Registry Number)
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR	Code of Federal Regulations
DOT	United States Department of Transportation
DSL	Canadian Domestic Substances List
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning & Community Right-to-know Act
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
MSHA	Mine Safety and Health Administration
NDSL	Canadian Non-Domestic Substances List
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Health and Safety Administration
PEL	Permissible Exposure Limit
PPE	Personal Protection Equipment
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act

UN/NA#	United Nations/North America number
WHMIS	Workplace Hazardous Material Information System

Prepared by:
Product Safety
USG Corporation
550 West Adams Street
Chicago, IL 60661-3637

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for his/her own particular use.

END