SECTION 10

MULE-HIDE PRODUCTS CO., INC.

TPO
Material Safety Data Sheets

PLEASE CONSULT THE MULE-HIDE WEBSITE FOR THE MOST CURRENT INFORMATION

MULE-HIDE TPO
MATERIAL SAFETY DATA SHEETS (MSDS)

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

Material Safety Data Sheet

MULE-HIDE REINFORCED TPO MEMBRANE **MSDS No. 10-1105**

Date of Preparation: 10/16/2013 Revision: 009

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide Reinforced TPO Membrane (Standard, EXTRA, FleeceBACK and SAT)
Chemical Formula: Mixture General Use: Roof and Waterproofing Membrane
Manufacturer: Carlisle Construction Materials Incorporated, 1285 Ritner Highway, Carlisle, PA 17013 (800-479-6832)
Supplier: Mule-Hide Products Co., Inc., 1195 Prince Hall Dr., Beloit, WI 53511 (800-786-1492)

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

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt *or* % vol
Propylene ethylene copolymer	9010-79-1	>50
Flame retardants (non-hazardous)		>15
Stabilizers (trade secret)		>5

Hazardous Ingredients:

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

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†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

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.

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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 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; slight waxy odor. (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): 0.95-1.05
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, 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: This product contains the following chemical(s) known to the state of California to cause cancer: None.

Section 16 - Other Information

Prepared By: Research & Development (BG)
Revision Notes: Section 1 – added “SAT” under Product/Chemical Name; Section 2 replaced “magnesium hydroxide” with “Flame retardants (non-hazardous)”

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
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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

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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:

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Material Safety Data Sheet

Mule-HideWATER CUT-OFF MASTIC **MSDS No. 10-2110**

Date of Preparation: 05/10/14 Revision: 024

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide WATER CUT-OFF MASTIC
Chemical Formula: Mixture **General Use:** Elastomeric Sealer
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
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

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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

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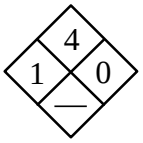


Flammability Classification: Division 2. Ignition can occur when this product is exposed to heat, sparks, or flame.
Extinguishing Media: In case of fire, use dry chemical, carbon dioxide, or foam. Water may not be effective as an extinguishing agent. Water fog or spray may be used to provide a smothering 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):

For Inner Packages less than or equal to 0.3 gallons (1 liter) -- cartridges

Shipping Name: Adhesives
Shipping Symbols: Limited Quantity
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: Limited Quantity label
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

For Inner Packages greater than 0.3 gallons (1 liter) – cans, pails, & drums

Shipping Name: Adhesives
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: Red Caution label required
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: Updated Section 14-Transportation Information

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

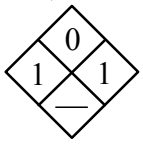
Section 4 - First Aid Measures

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.

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Material Safety Data Sheet

MULE-HIDE TPO BONDING ADHESIVE **MSDS No. 10-2310**

Date of Preparation: 4/11/13 Revision: 014

Section 1 - Chemical Product and Company Identification

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

Section 2 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Warning – Highly flammable liquid and vapor
Warning – Causes skin irritation
Warning – Causes serious eye irritation
Warning – May be harmful 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

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Acute Effects
Inhalation: Throat irritation on short-term exposure to liquid or vapor. Aspiration into lungs can cause chemical pneumonitis which can be fatal.
Eye: Irritation on short-term exposure to liquid or vapor.
Skin: Irritation on short-term exposure to liquid or vapor.
Ingestion: Ingestion can cause gastrointestinal irritation.
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.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, possible unconsciousness, even asphyxiation. Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of the skin. Chronic exposure may cause reversible liver and kidney injury.
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Repeated exposure to Toluene has been associated with high frequency hearing loss based on animal tests.

Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt *or* % vol
Toluene	108-88-3	30-60
Heptane	142-82-5	10-30
Acetone	67-64-1	7-13
Xylene	1330-20-7	1-5
Magnesium Oxide	1309-48-4	0.1-1.0
Polychloroprene	9010-98-4	
Phenolic Resin	26022-00-4	

Hazardous Ingredients:

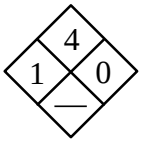
	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Heptane	500 ppm	500 ppm	400 ppm	500 ppm	85 ppm	440 ppm	750 ppm
Acetone	1000 ppm	1000 ppm	500 ppm	750 ppm	250 ppm	none estab.	2500 ppm
Toluene	200 ppm	150 ppm	20 ppm (skin)	None estab.	100 ppm	150 ppm	500 ppm
Xylene	100 ppm	150 ppm	100 ppm	150 ppm	100 ppm	150 ppm	900 ppm
Magnesium Oxide	15mg/m^3 (as dust)	None estab.	10mg/m^3	None estab.	10 mg/m^3	None estab.	750mg/m^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.
Note to Physicians: This product contains toluene and heptane.
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: -4°F (-20°C)
Flash Point Method: Pensky - Martens CC
Autoignition Temperature: 433.4°F (223 °C)
LEL: 1.0% v/v
UEL: 12.8% v/v
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 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: 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 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 oxides of nitrogen 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

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 100 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 100 ppm or above.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses or goggles recommended. Wear industrial shoes to protect feet from adhesive contact. Wear long sleeves and trousers to protect skin from adhesive contact.

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: Yellowish liquid with strong hydrocarbon odor.
Odor Threshold(ppm): Not available.
Vapor Pressure: 37 mm Hg at 86 °F (30 °C)
Vapor Density (Air=1): 2.0-3.5
Density: 7.09 lbs./gal. (calculated)
Specific Gravity (H_2O=1, at 4°C/39°F): 0.849
pH: N/A

Water Solubility: Negligible.
Boiling Point (°C): 56-110 (133-230°F)
Freezing/Melting Point(°C): -91 (-132°F)
% Volatile: 78-82
Evaporation Rate: 1.9-8.3
VOC: 670 g/l
Flash Point: -4°F (-20°C)
Flash Point Method: Pensky - Martens CC
Autoignition Temperature: 433.4°F (223 °C)
LEL: 1.0% v/v
UEL: 12.8% 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 oxides of nitrogen may be released in a fire.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Irritation at or above PEL of 100 ppm.

Skin Effects: Irritation at or above PEL of 100 ppm.

Acute Inhalation Effects: Product toxicity has not been determined.
The following is component data:
Toluene – Rat, Inhalation, LCLo: 4000ppm/4 hrs
Heptane – Human, inhalation, TCLo: 1000 ppm/6 minutes
Acetone – Rat, inhalation, TC 50 > 20,700 ppm/8 hours
Acute Oral Effects: Product toxicity has not been determined.
The following is component data:
Toluene - Rat, oral, LD_{50}:5000mg/kg
Acetone – Rat, 5800 mg/kg; Mouse, 3000 mg/kg; Rabbit, 5340 mg/kg
Heptane - Rat, ivn, LD_{50}: 222mg/kg

Carcinogenicity: Not listed in IARC or NTP.
Mutagenicity: Some evidence in animal exposure to Toluene.
Teratogenicity: Some evidence in animal exposure to Toluene.

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: Red flammable liquid 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: 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 (40 CFR 261.33): Toluene U220
RCRA Hazardous Waste Classification (40 CFR 261.31): Not Classified
TSCA (Toxic Substances Control Act) Status:
TSCA (United States) – The intentional ingredients of this product are listed.
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): Toluene 1,000 lb (454.5 kg); Acetone, 5000 lb. (2272.5 kg); Xylenes (0-, M-,P-Isomers) 100 lb/45.4 kg)
SARA 311/312 Codes:
SARA Toxic Chemical (40 CFR 372.65): Toluene, CAS#108-88-3, 30-60%
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
Clean Air Act Data: Toluene HAP Code: XOV
Clean Water Act: Toluene is listed as a priority pollutant. RQ: 1,000 lbs. (454.5 kg)

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: Toluene.

Delaware Air Quality Management List:	Acetone	DRQ: 5,000 State: Must be reported to the DRQ.
	Toluene	DRQ: 1,000 State: Must be reported to the DRQ.
	Xylene	DRQ: 100 State: N

Massachusetts Hazardous Substance Codes:	Toluene	108-88-3	2,4,5,6,F7,F8
	Heptane	64742-89-8	2,4,5,6
	Acetone	67-64-1	2, 4, 5, 6, F8, F9
	Xylene	1330-20-7	2, 4, F8, F9

Michigan Critical Materials Register:	Toluene	108-88-3	Report: --	Class: --
	Xylene	1330-20-7	Report: --	Class:--

Minnesota Hazardous Substance:	Toluene	Codes: ANO	Hazards: skin	Carcinogen: No
	Heptane	Codes: ANO	Hazards: --	Carcinogens: No
	Acetone	Codes: AON	Hazards: --	Carcinogens: No
	Xylene	Codes: ANO	Hazards:--	Carcinogens: No

New Jersey RTK Hazardous Substance:	Toluene	Dot#: 1294	Substance#: 1866	TPQ: -- EHS: No
	Xylenes:	Dot# 1307	Substance#: 2014	TPQ: -- EHS: No

New York List of Hazardous Substances:	Toluene	RQ Air: 1,000	RQ Land: 1	Acutely Hazardous: No
	Xylene	RQ Air: 1,000	RQ Land: 1	Acutely Hazardous: No
	Acetone	RQ Air: 5,000	RQ Land: 1	Acutely Hazardous: No

Pennsylvania Hazardous Substance Code:	Methyl Benzene (Toluene)	108-88-3	Code: E
	Heptane	64742-89-8	Code: --

Benzene, Dimethyl (Xylene)	1330-20-7	Code: E
2 Propanone (Acetone)	67-64-1	Code: E

Washington Air Contaminant:

TWA (ppm):	100 (Toluene)	750 (Acetone)
TWA (mg):	375 (Toluene)	1800 (Acetone)
STEL (ppm):	150 (Toluene)	1000 (Acetone)
STEL (mg):	560 (Toluene)	2400 (Acetone)
Ceiling (ppm):	None listed	
Ceiling (mg):	None listed	
Skin:	None listed	

Canadian WHMIS Classification: Class: B
Division 2

Section 16 - Other Information

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

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Material Safety Data Sheet

LOW VOC BONDING ADHESIVE **MSDS No. 10-2405**

Date of Preparation: 12/5/12 Revision: 002

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: LOW VOC BONDING ADHESIVE
Chemical Formula: Mixture **General Use:** Contact Bonding Adhesive for EPDM and TPO
Manufacturer: Carlisle SynTec Incorporated, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-479-6832
Supplier: Mule-Hide Products Co., Inc., Beloit, WI 53511 Phone: 800-786-1492
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
Danger – May damage fertility or the unborn child
Warning – May cuase an allergic skin reaction
Warning – May cause drowsiness and diziness
Warning – May cause damage to organs (liver, kidney, ear) through prolonged or repeated exposure

Potential Health Effects

HMIS
H 1
F 4
R 0
PPE†
†Sec. 8

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs:
Acute Effects
Inhalation: Throat irritation on short-term exposure to liquid or vapor. Aspiration into lungs can cause chemical pneumonitis which can be fatal.
Eye: Irritation on short-term exposure to liquid or vapor
Skin: Irritation on short-term exposure to liquid or vapor
Ingestion: Ingestion can cause irritation to gastrointestinal tract
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.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, and possible unconsciousness, even asphyxiation. Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of the skin. Chronic exposure may cause reversible liver and kidney injury. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Repeated exposure to Toluene has been associated with high frequency hearing loss based on animal tests.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	**% wt**
Acetone	67-64-1	1-5
Tert- Butyl Acetate (TBAc)	540-88-5	30 – 60
Parachlorobenzotrifluoride (PCBTF)	98-56-6	10 – 30
Toluene	108-88-3	3 - 7
Magnesium Oxide	1309-48-4	0.5 – 1.5
Additional Ingredients	CAS Number	**% wt**
Polychloroprene	Proprietary	
Synthetic Rubber	Proprietary	
Phenolic Resin	Proprietary	

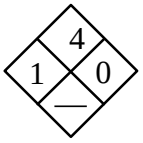
Section 4 - First Aid Measures

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.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: 0°F (-17 °C)
Flash Point Method: CC
Autoignition Temperature: 869 °F (465 °C)
LEL: 0.9% v/v
UEL: 12.8% v/v
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 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: 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 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 oxides of nitrogen 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 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.
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**
Acetone	1000 ppm	1000 ppm	500 ppm	750 ppm	250 ppm	None estab.	2500 ppm
PCBTF	20 ppm	None estab.	None estab.	None estab.	None estab.	None estab.	None estab.
Tert-Butyl Acetate	200 ppm	None estab.	200 ppm	None estab.	200 ppm	None estab.	1500 ppm
Toluene	200 ppm	150 ppm	20 ppm (skin)	None estab.	100 ppm	150 ppm	500 ppm
Magnesium Oxide	10 mg/m^3 (as dust)	None estab.	10 mg/m3	None estab.	10 mg/m3	None estab.	750 mg/m3

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 100 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.
Administrative Controls:
Respiratory Protection: A NIOSH approved respirator must be used if vapor concentration is 100 ppm or above.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses or goggles recommended. Industrial shoes to protect feet from adhesive contact. Long sleeves, long trousers to protect skin from adhesive contact. 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: Yellowish liquid with strong sweet odor.
Odor Threshold(ppm): Not available.
Vapor Pressure: 5-400 mm Hg
Vapor Density (Air=1): 2.0-5.3
Specific Gravity (H_2O=1, at 4 °C): 0.97

Water Solubility: Negligible
Other Solubilities:
Boiling Point(°C): 56-139 (133 - 282°F)
Freezing/Melting Point(°C): -36 (-33°F)
% Volatile: 75 - 85
Evaporation Rate: 0.9-8.3
VOC: 250 g/L maximum
Flash Point: 0°F (-17 °C)
Flash Point Method: CC
Autoignition Temperature: 869 °F (465 °C)
LEL: 0.9% v/v
UEL: 12.8% 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 oxides of nitrogen may be released in a fire.

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:
LC_{50}:
Toluene: Rat > 26,700 ppm 1 hr; Mouse 400 ppm 24 hr
Acetone: Rat > 20,700 ppm 8 hr
TBAc: Rat = 4211 ppm 6 hr
PCBTF: Rat = 4479 ppm

Acute Oral Effects: Product toxicity has not been determined.
Following are the component data:
LD_{50}:
Toluene: Rat 5000 mg/kg
Acetone: Rat 5800 mg/kg
Mouse 3000 mg/kg
Rabbit 5340 mg/kg
TBAc: Rat 4500 mg/kg
PCBTF: Rat > 6800 mg/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.

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.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives, 3, UN1133, II
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN 1133
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): 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)
Toluene	1000
Acetone	5000
Tert-Butyl acetate	5000

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	%
Toluene	108-88-3	3 - 7

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 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 substance(s) known to the State of California to cause reproductive harm:
Toluene

Delaware Air Quality Management List:

Chemical Name	DRQ:	State?
Toluene	1000	Must be reported to the DRQ
Acetone	5000	Must be reported to the DRQ
Tert-Butyl acetate	5000	Must be reported to the DRQ

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Codes
Toluene	108-88-3	2, 4, 5, 6, F7, F8
Acetone	67-64-1	2, 4, 5, 6, F8, F9
Magnesium Oxide fume	1309-48-4	2, 4
Tert-Butyl acetate	540-88-5	2, 4, F8

Michigan Critical Materials Registry:

Chemical Name	CAS #	Report	Class
Toluene	108-88-3	- -	- -

Minnesota Hazardous Substance:

Chemical Name	Codes	Hazards	Carcinogen?
Toluene	ANO	skin	No
Acetone	AON	--	No
Magnesium Oxide fume	AO	--	No
Tert-Butyl Acetate	AO	--	No

New Jersey RTK Label Information:

Chemical Name	CAS #	Substance #	DOT #	TPQ	EHS
Toluene	108-88-3	1866	1294	- -	

New York List of Hazardous Substances:

Chemical Name	RQ – Air	RQ – Land	Note
Toluene	1000	1	none
Acetone	5000	1	none
Tert-Butyl acetate	5000	1	none

Pennsylvania RTK Label Information

Chemical Name	CAS #	Code
Benzene, Methyl	108-88-3	E
2-Propanone	67-64-1	E
Magnesium Oxide	1309-48-4	--
Acetic acid, 1,1-dimethylethyl ester	540-88-5	E

Washington Air Contaminant:

TWA (ppm):	100 (Toluene)	750 (Acetone)	200 (tert-Butyl acetate)	
TWA (mg):	375 (Toluene)	1800 (Acetone)	950 (tert-Butyl acetate)	10 (magnesium oxide fume, total particulates)
STEL (ppm):	150 (Toluene)	1000 (Acetone)		
STEL (mg):	560 (Toluene)	2400 (Acetone)		
Ceiling (ppm):	None listed			
Ceiling (mg):	None listed			
Skin:	None listed			

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Updated Hazardous Materials

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

LOW VOC BONDING ADHESIVE 1168 **MSDS No. 10-2415**

Date of Preparation: 11/12/2010 Revision: 000

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: LOW VOC BONDING ADHESIVE 1168
Chemical Formula: Mixture **General Use:** Contact Bonding Adhesive for EPDM and TPO
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 eye irritation
Warning – May be harmful if swallowed and enters airways
Danger – May damage fertility or the unborn child
Warning – May cuase an allergic skin reaction
Warning – May cause drowsiness and diziness
Warning – May cause damage to organs (liver, kidney, ear) through prolonged or repeated exposure

Potential Health Effects

HMIS
H 1
F 4
R 0
PPE†
†Sec. 8

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs:
Acute Effects
Inhalation: Throat irritation on short-term exposure to liquid or vapor. Aspiration into lungs can cause chemical pneumonitis which can be fatal.
Eye: Irritation on short-term exposure to liquid or vapor
Skin: Irritation on short-term exposure to liquid or vapor
Ingestion: Ingestion can cause irritation to gastrointestinal tract
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.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, and possible unconsciousness, even asphyxiation. Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of the skin. Chronic exposure may cause reversible liver and kidney injury. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Repeated exposure to Toluene has been associated with high frequency hearing loss based on animal tests.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	**% wt**
Acetone	67-64-1	3 – 7
Parachlorobenzotrifluoride (PCBTF)	98-56-6	40 – 70
Toluene	108-88-3	3 – 7
Magnesium Oxide	1309-48-4	0.5 – 1.5
Additional Ingredients	CAS Number	**% wt**
Polychloroprene	Proprietary	
Synthetic Rubber	Proprietary	
Phenolic Resin	Proprietary	

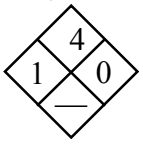
Section 4 - First Aid Measures

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.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: 0°F (-17 °C)
Flash Point Method: CC
Autoignition Temperature: 869 °F (465 °C)
LEL: 0.9% v/v
UEL: 12.8% v/v
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 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: 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 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 oxides of nitrogen 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 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.
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**
Acetone	1000 ppm	1000 ppm	500 ppm	750 ppm	250 ppm	None estab.	2500 ppm
Parachlorobenzotrifluoride (PCBTF)	20 ppm	None estab.	None estab.	None estab.	None estab.	None estab.	None estab.
Toluene	200 ppm	150 ppm	20 ppm (skin)	None estab.	100 ppm	150 ppm	500 ppm
Magnesium Oxide	10 mg/m^3 (as dust)	None estab.	10 mg/m3	None estab.	10 mg/m3	None estab.	750 mg/m3

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 100 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.
Administrative Controls:
Respiratory Protection: A NIOSH approved respirator must be used if vapor concentration is 100 ppm or above.
Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses or goggles recommended. Industrial shoes to protect feet from adhesive contact. Long sleeves, long trousers to protect skin from adhesive contact. 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: Yellowish liquid with strong hydrocarbon odor.
Odor Threshold(ppm): Not available.
Vapor Pressure: 5-400 mm Hg
Vapor Density (Air=1): 2.0-5.3
Specific Gravity (H_2O=1, at 4 °C): 1.13

Water Solubility: Negligible
Other Solubilities:
Boiling Point(°C): 56-139 (133 - 282°F)
Freezing/Melting Point(°C): -36 (-33°F)
% Volatile: 75 - 80
Evaporation Rate: 0.9-8.3
VOC: 250 g/L maximum
Flash Point: 0°F (-17 °C)
Flash Point Method: CC
Autoignition Temperature: 869 °F (465 °C)
LEL: 0.9% v/v
UEL: 12.8% 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 oxides of nitrogen may be released in a fire.

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:
TC_{50}:
Toluene: Rat > 26,700 ppm 1 hr; Mouse 400 ppm 24 hr
Acetone: Rat > 20,700 ppm 8 hr
PCBTF: Rat = 4479 ppm

Acute Oral Effects: Product toxicity has not been determined. Following are the component data:
LD_{50}:
Toluene: Rat 5000 mg/kg
Acetone: Rat 5800 mg/kg
Mouse 3000 mg/kg
Rabbit 5340 mg/kg
PCBTF: Rat > 6800 mg/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.

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.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives, 3, UN1133, II
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN 1133
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): 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)
Toluene	1000
Acetone	5000

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	%
Toluene	108-88-3	3 - 7

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 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 substance(s) known to the State of California to cause reproductive harm:
Toluene

Delaware Air Quality Management List:

Chemical Name	DRQ:	State?
Toluene	1000	Must be reported to the DRQ
Acetone	5000	Must be reported to the DRQ

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Codes
Toluene	108-88-3	2, 4, 5, 6, F7, F8
Acetone	67-64-1	2, 4, 5, 6, F8, F9

Michigan Critical Materials Registry:

Chemical Name	CAS #	Report	Class
Toluene	108-88-3	- -	- -

Minnesota Hazardous Substance:

Chemical Name	Codes	Hazards	Carcinogen?
Toluene	ANO	skin	No
Acetone	AON	--	No

New Jersey RTK Label Information:

Chemical Name	CAS #	Substance #	DOT #	TPQ	EHS
Toluene	108-88-3	1866	1294	- -	

New York List of Hazardous Substances:

Chemical Name	RQ – Air	RQ – Land	Note
Toluene	1000	1	none
Acetone	5000	1	none

Pennsylvania RTK Label Information

Chemical Name	CAS #	Code
Benzene, Methyl	108-88-3	E
2-Propanone	67-64-1	E

Washington Air Contaminant:

TWA (ppm):	100 (Toluene)	750 (Acetone)
TWA (mg):	375 (Toluene)	1800 (Acetone)
STEL (ppm):	150 (Toluene)	1000 (Acetone)
STEL (mg):	560 (Toluene)	2400 (Acetone)
Ceiling (ppm):	None listed	
Ceiling (mg):	None listed	
Skin:	None listed	

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Original Entry

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

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Material Safety Data Sheet

Mule-Hide WEATHERED MEMBRANE CLEANER **MSDS No. 10-3105**

Date of Preparation: 03/21/2011 Revision: 010

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide WEATHERED MEMBRANE CLEANER
Chemical Formula: Mixture General Use: Cleaning Solution for Weathered EPDM and TPO Membranes
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 serious eye irritation
Danger – May be fatal if swallowed and enters airways
Warning – May cause an allergic skin reaction
Warning – May cause drowsiness and dizziness

HMIS
H 1
F 3
R 0
PPE†
†Sec. 8

Potential Health Effects

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs: May cause damage to the following organs: kidneys, lungs, liver, mucous membranes, upper respiratory tract, skin, eyes, central nervous system

Acute Effects

Inhalation: Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness or unconsciousness. Breathing high concentrations of this material, for example, in an enclosed space or by intentional abuse, can cause irregular heartbeats which can cause death.

Eye: This product can cause transient mild eye irritation with short-term contact with liquid sprays or mists. Symptoms include stinging, watering, redness and swelling.

Skin: This material can cause skin irritation. The degree of irritation will depend on the amount of material that is applied to the skin and the speed and thoroughness that it is removed. Symptoms include redness, itching and burning of the skin. Repeated or prolonged skin contact can produce moderate irritation (dermatitis).

Ingestion: If swallowed, this material may irritate the mucous membranes of the mouth, throat and esophagus. It can be readily absorbed by the stomach and intestinal tract. Symptoms include a burning sensation of the mouth and esophagus, nausea, vomiting, dizziness, staggering gait, drowsiness, loss of consciousness, and delirium, as well as additional central nervous system effects. Due to its light viscosity, there is a danger of aspiration into the lungs during vomiting. Aspiration can result in severe lung damage or death.

Carcinogenicity: This product is not known to contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

Medical Conditions Aggravated by Long-Term Exposure: Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material include: skin, respiratory system, liver, kidneys and central nervous system.

Chronic Effects: Chronic effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Aliphatic Petroleum Distillate	64742-89-8	100
Additional Ingredients	**CAS Number**	**% wt**

Section 4 - First Aid Measures

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately.

Eye Contact: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low-pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Do not use eye ointment. Seek medical attention immediately.

Skin Contact: Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use skin ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention immediately.

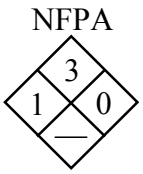
Ingestion: Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Note to Physicians: INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for upper respiratory tract inflammation, bronchitis and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

This material sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitis position.

Section 5 - Fire-Fighting Measures



Flash Point: 65 °F (18 °C)
Flash Point Method: TCC
Autoignition Temperature: 450 °F (232 °C)
LEL: 0.9% v/v
UEL: 6.7% v/v
Flammability Classification: NFPA Class – 1B flammable liquid.

Extinguishing Media: SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog or inert gas (nitrogen). LARGE FIRE: Use foam, water fog or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.

Unusual Fire or Explosion Hazards: Flammable Liquid! This material releases vapors at or below ambient temperatures. When mixed with air in certain proportions and exposed to an ignition source, its vapor can cause a flash fire. Use only with adequate ventilation. Vapors are heavier than air and may travel long distances along the ground to an ignition source and flash back. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide, smoke, fumes and/or unburned hydrocarbons may be released in a fire.

Fire-Fighting Instructions: Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus (SCBA) to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Be aware that burning liquid will float on water. Notify appropriate authorities if liquid enters sewers or waterways.

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.

Flammable Liquid! Release causes an immediate fire or explosion hazard. A vapor-suppressing foam may be used to reduce vapors. Eliminate all ignition sources. All equipment used when handling this material must be grounded. Stop the leak if it can be done without risk. Do not touch or walk through spilled material. Remove spillage immediately from hard, smooth walking surfaces. Prevent spilled material from entering waterways, sewers, basements or confined area. Absorb or cover with dry earth, sand or other non-combustible material and transfer to appropriate waste containers. Use clean, non-sparking tools to collect absorbed material.

For large spills, secure the area and control access. Prevent spilled material from entering sewers, storm drains, other drainage systems and natural waterways. Dike far ahead of a liquid spill to ensure complete collection. Water mist or spray may be used to reduce or disperse vapors; but it might not prevent ignition is closed spaces. This material will float on water and its run-off may create an explosion or fire hazard. In an urban area, cleanup spill as soon as possible; in natural environments, cleanup on advice from specialists. Pick up free liquid for recycle and/or disposal if it can be accomplished safely with explosion-proof equipment. Collect any excess material with absorbant pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal. Comply with all laws and regulations.

Section 7 - Handling and Storage

Handling Precautions: A spill or leak can cause an immediate fire or explosion hazard. Keep containers closed and do not handle or store near heat, sparks or other potential ignition sources. Do not contact with oxidizable materials. Do not breath vapor. Use only with adequate ventilation and personal protection. Never siphon by mouth. Avoid contact with eyes, skin and clothing. Prevent contact with food and tobacco products. Do not take internally. KEEP OUT OF REACH OF CHILDREN.

Storage Requirements: Store and transport in accordance with applicable laws. Keep containers tightly closed and store in a cool, dry, well-ventilated place, plainly labeled and out of closed vehicles. Keep away from ignition sources. Ground all equipment containing this material. Containers should be able to withstand pressures expected from warming and cooling in storage. This flammable liquid should be stored in a separate safety cabinet or room.

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.

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits of 300 ppm. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near workstation.

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: Odor is not an adequate warning for potentially hazardous air concentrations. For unknown vapor concentrations, use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA), especially when entering a confined space or where the oxygen concentrations may be reduced because of an accumulation of vapors. For known vapor concentrations above the occupational exposure guidelines (see Section 8), use a NIOSH-approved organic vapor respirator, if adequate protection is provided. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

Eye Protection: Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Safety glasses/goggles should be worn during transfer operations or when there is a likelihood of misting, splashing or spraying of this material. Suitable eye wash water should be readily available.

Hand Protection: Avoid skin contact. Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work.

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: Clear liquid with characteristic hydrocarbon solvent odor.
Odor Threshold(ppm): Not available.
Vapor Pressure: 5 mm Hg at 20 °C (68°F)
Vapor Density (Air=1): 4.1
Density: average at 60°F (15.5°C) = 6.32 lbs/gal (calculated)
Specific Gravity (H_2O=1, at 4°C/39°F): 0.76
pH: N/A

Water Solubility: Very slight solubility in cold water (<0.1% w/w)
Boiling Range(°C): 127 to 144 (260 to 291°F)
Freezing/Melting Point(°C): N/A
Viscosity: <5 (cSt @ 40°C/104°F)
% Volatile: 100
Evaporation Rate: 1.0 (n-Butyl acetate = 1.0)
VOC: 755 gpl
Flash Point: 65 °F (18 °C)
Flash Point Method: TCC
Autoignition Temperature: 450 °F (232 °C)
LEL: 0.9% v/v
UEL: 6.7% v/v

Section 10 - Stability and Reactivity

Stability: Stable.
Possibility of Hazardous Reactions: Not expected to occur.
Chemical Incompatibilities: Strong acids, alkalies and oxidizers such as liquid chlorine and oxygen.
Conditions to Avoid: Keep away from heat, sparks, flame and strong oxidizing materials.
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

Eye Effects: Studies on laboratory animals have associated similar materials with eye and respiratory tract irritation.

Skin Effects: Studies on laboratory animals have shown similar materials to cause skin irritation after repeated or prolonged contact. Repeated direct application of Stoddard Solvent to the skin can produce defatting dermatitis and kidney damage in laboratory animals.

Acute Oral Effects: No data

Chronic Effects: Rats developed kidney damage and elevated blood urea nitrogen levels when exposed to a concentration of 1.9 mg/L for 65 days. The kidney damage occurred only in male rats and appeared to involve both the tubules and glomeri. The significance of these animal study results to human health is unclear.
Carcinogenicity: No evidence
Mutagenicity: No evidence
Teratogenicity: No evidence

Section 12 - Ecological Information

Ecotoxicity: This mixture contains components that are potentially toxic to freshwater and saltwater ecosystems.
Environmental Fate: This mixture will normally float on water with its lighter components evaporating rapidly. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this covering layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway might be enough to cause a fish kill or create an anaerobic environment. This coating action can also be harmful or fatal to plankton, algae, aquatic life and water birds.

Section 13 - Disposal Considerations

Hazard characteristics and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.
Disposal: Dispose of in accordance with all local, state, and federal regulations. Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitability (D001) and/or its toxic (D018) characteristics. Conditions of use may cause this material to become a “hazardous waste”, as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a RCRA “hazardous waste” at the time of disposal.
Disposal Regulatory Requirements: Transportation, treatment, storage and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

US DOT Status: This material is regulated by the U.S. Department of Transportation.

Shipping Name: Paint related material, 3, UN1263 PG II
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1263
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: n/a

Section 15 - Regulatory Information

TSCA Inventory: This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification: The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355: No components were identified in this material.

SARA 311/312 Hazard Identification: SARA Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2 This material would be classified under the following hazard categories: Fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

SARA 313 Toxic Chemical Notification and Release Reporting: This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals is 40 CFR part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.

CERCLA: The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQs) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product that may be subject to this statute are:

2,2,4-Trimethylpentane [CAS No. 540-84-1] RQ = 1000 lbs. (453.6 kg) Concentration 1-5%
Xylene, all isomers [CAS No. 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration < 0.5%
Ethylbenzene [CAS No. 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration < 0.1%
Benzene [CAS No. 71-43-2] RQ = 10 lbs (4.536 kg) Concentration < 0.005%

Clean Water Act (CWA): This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

California Proposition 65: This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Ethylbenzene: < 0.1%
Toluene: < 0.01%
Benzene: < 0.005%

Delaware Air Quality Management List: none listed

Massachusetts Hazardous Substances List: none listed

Michigan Critical Materials Register: none listed

Minnesota Hazardous Substances List: none listed

New Jersey Right-to-Know Label: none listed

New York List of hazardous Substances: none listed

Pennsylvania Hazardous Substances List: none listed

EPA Regulations:
RCRA Hazardous Waste Number (40 CFR 261.33): Not listed
RCRA Hazardous Waste Classification (40 CFR 261.30 through 261.38): 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, Threshold Planning Quantity (TPQ)

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

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

LOW VOC PRIMER **MSDS No. 10-3210**

Date of Preparation: 2/26/14 Revision: 003

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Low VOC Primer
Chemical Formula: Mixture **General Use:** VOC-Compliant Primer for Membrane
Manufacturer: Carlisle SynTec, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-479-6832 Emergency Phone
Supplier: Mule-Hide Products Co., Inc. 1195 Prince Hall Dr., Beloit, WI Phone: 800-786-1492
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
Warning – May be harmful 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	3
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs:
Acute Effects
Inhalation: throat irritation on short-term exposure to liquid or vapor. Aspiration into lungs can cause chemical pneumonitis, which can be fatal.
Eye: irritation on short-term exposure to liquid or vapor.
Skin: irritation on short-term exposure to liquid or vapor.
Ingestion: ingestion can cause gastrointestinal irritation
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.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, and possible unconsciousness, even asphyxiation. Moderate irritation of skin, eyes and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of the skin. Chronic exposure may cause reversible liver and kidney injury.
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Repeated exposure to Toluene has been associated with high frequency hearing loss based on animal tests.

Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt *or* % vol
Toluene	108-88-3	5-25
Aliphatic Petroleum Distillate (Naptha)	64742-89-8	10-30
Benzene, 1-Chloro-4 (Trifluoromethyl)	98-56-6	60-100

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**TWA**	**STEL**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**
Toluene	200 ppm	150 ppm	20 ppm (skin)	None estab.	100 ppm	150 ppm	500 ppm
Benzene, 1-Chloro-4 (Trifluoromethyl)	20 ppm	None estab.	None estab.	None estab.	None estab.	None estab.	None estab.
AliphaticPetroleum Distillate (Naptha)	500 ppm	None estab.	300 ppm	None estab.	None estab.	None estab.	None estab.

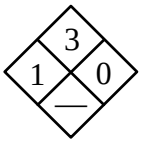
Section 4 - First Aid Measures

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.
Note to Physicians: This product contains several organic solvents (Toluene, Aliphatic Petroleum Distillate (Naptha), and Benzene, 1-Chloro-4 (Trifluoromethyl)
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

Flash Point: 40°F (4.4°C)
Flash Point Method: CC
Autoignition Temperature: 433.4°F (223°C)
LEL: 1.27% v/v
UEL: 7.10% v/v
Flammability Classification: Division 2

NFPA



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 location distant from material handling point and flashback. All containers should be grounded when material is transferred.
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide, carbon dioxide, hydrogen cyanide, or oxides of nitrogen 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 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.
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 way 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

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 100 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.
Administrative Controls:
Respiratory Protection: A NIOSH approved respirator must be used if vapor concentration is 100 ppm or above.

Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses or goggles recommended. Industrial shoes to protect feet from adhesive contact. Long sleeves, long trousers to protect skin from adhesive contact. 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: Thin green liquid with naphthenic odor.
Odor Threshold: Not available
Vapor Pressure: 36.7 @ 30 °C (86°F)
Vapor Density (Air=1): 3.1-3.2
Specific Gravity (H_2O=1, at 20°C/68°F): 1.177
PH: N/A

Water Solubility: Insoluble
Boiling Point (ºC): 110-115 (230-239°F)
Freezing/Melting Point (ºC): -48 (-54.4°F)
% Volatile: 89-92
Evaporation Rate(Ethyl Ether): 4.5
VOC: 250 gpl max
Flash Point: 40°F (4.4°C)
Flash Point Method: CC
Autoignition Temperature: 433.4°F (223°C)
LEL: 1.27% v/v
UEL: 7.10% 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 oxides of nitrogen may be released in a fire.

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:
TC_{50}:
Toluene: Rat > 26,700 ppm 1 hr; Mouse 400 ppm 24 hr

Acute Oral Effects: Product toxicity has not been determined. Following are component data:
LD_{50}:
Toluene: Rat 5000 mg/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

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.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesives, 3, UN1133, II
Shipping Symbols: Flammable
Hazard Class: 3
ID No.: UN1133
Packing Group: II
Label: red Flammable Liquid 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): 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)
Toluene	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	%
Toluene	108-88-3	3 - 7

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 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 substance(s) known to the State of California to cause reproductive harm:
Toluene

Delaware Air Quality Management List:

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

Massachusetts Hazardous Substances List:

Chemical Name	CAS #	Codes
Toluene	108-88-3	2, 4, 5, 6, F7, F8

Michigan Critical Materials Registry:

Chemical Name	CAS #	Report	Class
Toluene	108-88-3	- -	- -

Minnesota Hazardous Substance:

Chemical Name	Codes	Hazards	Carcinogen?
Toluene	ANO	skin	No

New Jersey RTK Label Information:

Chemical Name	CAS #	Substance #	DOT #	TPQ	EHS
Toluene	108-88-3	1866	1294	- -	

New York List of Hazardous Substances:

Chemical Name	RQ – Air	RQ – Land	Note
Toluene	1000	1	none

Pennsylvania RTK Label Information

Chemical Name	CAS #	Code
Benzene, Methyl	108-88-3	E

Washington Air Contaminant:

TWA (ppm):	100 (Toluene)
TWA (mg):	375 (Toluene)
STEL (ppm):	150 (Toluene)
STEL (mg):	560 (Toluene)
Ceiling (ppm):	None listed
Ceiling (mg):	None listed
Skin:	None listed

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: Update Name of 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

TPO TAPE PRIMER **MSDS No. 10-3215**

Date of Preparation: 03/21/11 Revision: 004

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: TPO Tape Primer
Chemical Formula: Mixture **General Use:** Primer
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 Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

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

Potential Health Effects

HMIS	
H	1
F	3
R	0
PPE†	
†Sec. 8	

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Target Organs:
Acute Effects
Inhalation: Throat irritation on short-term exposure to liquid or vapor. Aspiration into lungs can cause chemical pneumonitis which can be fatal.
Eye: Can cause severe irritation, redness, tearing, blurred vision.
Skin: Can cause redness, irritation, dermatitis.
Ingestion: Can cause gastrointestinal irritation, nausea, vomiting, and diarrhea.
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 material.
Chronic Effects: Overexposure may result in headache, dizziness, fatigue, nausea, possible unconsciousness, even asphyxiation. Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of the skin. Chronic exposure may cause reversible liver and kidney injury.
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Repeated exposure to Toluene has been associated with high frequency hearing loss based on animal tests.

Section 3 – Ingredient Information

Hazardous Ingredients	CAS Number	% wt
Light Aliphatic Solvent Naphtha	64742-89-8	30-60
Toluene	108-88-3	15-40
Additional Ingredients	**CAS Number**	**% wt**

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.

Note to Physicians: This product contains toluene and naphtha.
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

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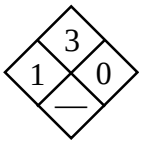


Flash Point: 18°F (-8 °C)
Flash Point Method: Based on Flash Point of the most volatile component.
Autoignition Temperature: 433.4°F (223 °C)
LEL: 1.2% v/v
UEL: N.A.
Flammability Classification:
Extinguishing Media: Foam, dry chemical or carbon dioxide. Water may be ineffective but water should be used to keep fire exposed containers cool.
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. Residue in "empty" containers may be explosive if exposed to an ignition source.
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide, carbon dioxide, or oxides of nitrogen 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. Restrict access by unauthorized personnel. 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. Waste is considered hazardous due to its ignitability. 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. Do not reuse containers unless properly reconditioned. 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**
Light Aliphatic Solvent Naphtha	300 ppm	400 ppm	300 ppm	None estab.	350 ppm	None estab.	None estab.
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 100 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 100 ppm or above.

Protective Clothing/Equipment: Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Glasses with side shields or goggles are recommended. Wear industrial shoes to protect feet from adhesive contact. Wear long sleeves, long trousers to protect skin from adhesive contact.

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: Clear liquid with characteristic solvent odor.
Odor Threshold(ppm): Not available.
Vapor Pressure: 38 mm Hg at 68 °F (20 °C)
Vapor Density (Air=1): 3.6
Density: 7.40 lbs./gal. (calculated)
Specific Gravity (H_2O=1, at 4°C/39°F): 0.75 – 0.81
pH: N/A

Water Solubility: Insoluble
Boiling Point (°F): 185 (85°C)
Freezing/Melting Point(°C): N/A
% Volatile: 85
Evaporation Rate (Ethyl Ether = 1) : 3.5
VOC: 645 gms./ l.
Flash Point: 18°F (-8 °C)
Flash Point Method: Based on Flash Point of the most volatile component.
Autoignition Temperature: 433.4°F (223 °C)
LEL: 1.2% v/v
UEL: N.A.

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, aldehydes and other decomposition products may be released in a fire.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Irritation at or above PEL of 100 ppm.

Skin Effects: Irritation at or above PEL of 100 ppm.

Acute Inhalation Effects: Product toxicity has not been determined.
The following is component data:
Toluene – Rat, Inhalation, LC_{Lo}: 4000ppm/4 hrs

Acute Oral Effects: Product toxicity has not been determined.
The following is component data:
Toluene - Rat, oral, LD_{50}:5000mg/kg

Carcinogenicity: Not listed in IARC or NTP.
Mutagenicity: Some evidence in animal exposure to Toluene.
Teratogenicity: Some evidence in animal exposure to Toluene.

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:
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: 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:

TSCA Inventory: All components are included in the EPA Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

RCRA Hazardous Waste Number (40 CFR 261.33): Toluene U220

RCRA Hazardous Waste Classification (40 CFR 261.31): Classified Hazardous Waste

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), Toluene 1,000 lb (454.5 kg)

SARA 311/312 Codes: Fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard.

SARA Toxic Chemical (40 CFR 372.65): Toluene, CAS# 108-88-3, 20 –15-40%

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

Clean Air Act Data: Toluene HAP Code: XOV

Clean Water Act: Toluene is listed as a priority pollutant. RQ: 1,000 lbs. (454.5 kg)

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: Toluene.

Delaware Air Quality Management List: Toluene DRQ: 1,000 State: Y

Massachusetts Hazardous Substance Codes: Toluene 108-88-3 2,4,5,6,F7,F8,F9

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

Minnesota Hazardous Substance: Toluene Codes: ANO Hazards: skin Carcinogen: No

New Jersey RTK Hazardous Substance: Toluene Dot#: 1294 Substance#: 1866 TPQ: -- EHS: No

New York List of Hazardous Substances: Toluene RQ Air: 1,000 RQ Land: 1 Acutely Hazardous: No

Pennsylvania Hazardous Substance Code: Methyl Benzene (Toluene) 108-88-3 Code: E

Washington Permissable Exposure Limits for Air Contaminants: Toluene, 108-88-3, TWA 100 ppm, TWA 375 mg
STEL 150 ppm, STEL 560 mg

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 TPO CUT-EDGE **MSDS No. 10-3405**

SEALANT Date of Preparation: 03/22/11 Revision: 008

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: MULE-HIDE TPO CUT-EDGE SEALANT
Chemical Formula: Mixture **General Use:** To Seal Cut Edges of Reinforced TPO Membrane
Manufacturer: Carlisle SynTec Incorporated, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-479-6832
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 ☆☆☆☆☆

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

HMIS	
H	2
F	3
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Primary Entry Routes: Skin contact, skin absorption, eye contact, inhalation, ingestion.
Acute Effects
Inhalation: Aspiration into lungs can cause chemical pneumonitis, which can be fatal.
Eye: irritation
Skin: irritation
Ingestion: Ingestion can cause gastrointestinal irritation, vomiting and diarrhea.
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, skin allergies, and pre-existing heart disorders may be aggravated by exposure to this material.
Chronic Effects: Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of skin. Overexposure may result in headache, dizziness, fatigue, nausea, possible unconsciousness and even asphyxiation. Chronic exposure may cause reversible kidney and liver injury. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

Section 3 – Ingredient Information

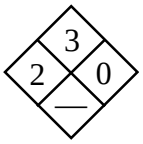
Hazardous Ingredients	CAS Number	% wt
Xylene	1330-20-7	15-40
Toluene	108-88-3	40-70
Additional Ingredients	**CAS Number**	**% wt**

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.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Special Precautions/Procedures: Whenever possible, remove the worker from the source of contamination.

Section 5 - Fire-Fighting Measures

NFPA



Flash Point: 39 °F (4 °C)
Flash Point Method: TCC
Autoignition Temperature: 986°F (530°C)
LEL: 1.2% v/v
UEL: 7.0% v/v
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: 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: 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.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products (fumes, smoke, carbon monoxide, and carbon dioxide), 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.

Small Spills: For small liquid spills, take up with sand or other noncombustible absorbent material and place into closed containers for later disposal.

Large Spills: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Regulatory Requirements: This material is considered to be a hazardous under RCRA. 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 , drinking, or smoking. Launder contaminated clothing. KEEP OUT OF REACH OF CHILDREN.

Storage Requirements: Keep containers in a cool, dry, well-ventilated area away from all sources of heat, flame, and sparks. Store at 60-95°F (15.5-35°C) and out of sun. Keep containers tightly closed when not in use. 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**
Xylene	100 ppm	150 ppm	100 ppm	150 ppm	100 ppm	150 ppm	900 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 vapor concentration below PEL.

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: Approved NIOSH respirator must be used if vapor concentration is 50 ppm or above.

Protective Clothing/Equipment: Long sleeves, long trousers to protect skin from sealant contact. Permeation resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Protective glasses or goggles recommended, Industrial boots to protect feet from sealant contact. 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: Clear liquid with hydrocarbon solvent odor.
Odor Threshold: 1 ppm.
Vapor Pressure: 36.7 mm Hg at 30 °C (86°F)
Specific Gravity (H_2O=1, at 4°C/39°F): 0.873

Water Solubility: insoluble
Boiling Point: 110-120°C (230 - 248°F)
Freezing/Melting Point: not determined
% Volatile: 87.4
Evaporation Rate: faster than nBuAc
Vapor Density (Air=1): heavier than air
VOC: 762 gpl
Flash Point: 39 °F (4 °C)
Flash Point Method: TCC
Autoignition Temperature: 986°F (530°C)
LEL: 1.2% v/v
UEL: 7.0% v/v

Section 10 - Stability and Reactivity

Stability: Stable.
Possibility of Hazardous Reactions: Will not occur.
Chemical Incompatibilities: Strong oxidizing agents, acids and bases.
Conditions to Avoid: Heat, sparks, and flames; ignition sources; static electricity.
Hazardous Decomposition Products: In the event of partial combustion, fumes, smoke, carbon monoxide, and carbon dioxide may be released.

Section 11- Toxicological Information

Toxicity Data:

Eye Effects: Irritant of eyes and mucous membranes
Skin Effects: Irritant.
Acute Inhalation Effects:
Narcotic, Central Nervous System depressant
Acute Oral Effects:
Oral-rat, LD_{50}: 4300 mg/kg, 5000 mg/kg
Oral-human LD_{50}: 50mg/kg (est. xylene)

Chronic Effects: Moderate irritation of skin, eyes, and mucous membranes of upper respiratory tract on prolonged/repeated contact. Dermatitis and defatting of skin. Chronic exposure may cause reversible kidney and liver injury, bone marrow hyperplasia, anemia, and central nervous system depression. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

Section 12 - Ecological Information

Ecotoxicity: No data available
Environmental Fate: No data available
Environmental Degradation: No data available
Soil Absorption/Mobility: No data available

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all local, state, and federal regulations.
Disposal Regulatory Requirements: This material is considered to be hazardous waste under RCRA. It may be disposed of in an organometallic or organic lab pack that meets the requirements of 40 CFR 264.316 or 265.316.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Adhesive, containing a flammable liquid.
Shipping Symbols: none
Hazard Class: 3
ID No.: UN 1133
Packing Group: II
Label: red caution label required for 1 and 5 gallon pails only.
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: none

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number: U220/U239 (Toluene/Xylene) (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261.131): Hazardous
TSCA (Toxic Substances Control Act) Status: TSCA (United States) – The intentional ingredients of this product are listed.
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), 100 lb (45.4 kg) (as Xylene)
SARA 311/312 - Hazard Classes: Acute Health – Yes, Chronic Health – Yes, Fire - Yes
SARA Toxic Chemical (40 CFR 372.65): Xylene, CAS#1330-20-7, 15-40% and Toluene, CAS#180-88-3, 40-70%
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

Clean Air Act Data: Toluene; HAP Code: XOV; Xylene; HAP Code: XOV.

Clean Water Act: Toluene is listed as a priority pollutant. RQ: 1,000 lbs. (454.5 kg)
Clean Water Act: Xylene is listed. RQ: 100 lbs. (45.4 kg)

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: Toluene.

Delaware Air Quality Management List: Toluene DRQ: 1,000; State: Must be reported to DRQ
Xylene DRQ: 100 State: Must be reported to DRQ

Massachusetts Hazardous Substance Codes: Toluene 108-88-3 2,4,5,6,F7,F8
Xylene 1330-20-7 2, 4, F8, F9

Michigan Critical Materials Register: Toluene 108-88-3 Report: -- Class: --
Xylene 1330-20-7

Minnesota Hazardous Substance: Toluene Codes: ANO Hazards: skin Carcinogen: No
Xylene Codes: ANO Hazards: -- Carcinogen: No

New Jersey RTK Hazardous Substance: Toluene Dot#: 1294 Substance#: 1866 TPQ: -- EHS: No
Xylene Dot#: 1307 Substance#: 2014 TPQ: -- EHS: No

New York List of Hazardous Substances: Toluene RQ Air: 1,000 RQ Land: 1 Acutely Hazardous: No
Xylene RQ Air: 1,000 RQ Land: 1 Acutely Hazardous: No

Pennsylvania Hazardous Substance Code: Methyl Benzene (Toluene) 108-88-3 Code: E
Dimethyl Benzene (Xylene) 1330-20-7 Code: E

Washington Air Contaminant	Toluene	Xylene
TWA (ppm)	100	100
TWA (mg)	375	435
STEL (ppm)	150	150
STEL (mg)	560	655

Canadian WHMIS Classification: Class: B Division 2 (Flammable Liquid)
Class: D Division 2B (Toxic by other means)

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: Toluene.

Section 16 - Other Information

Prepared By: Research & Development
Revision Notes: General Review, no change.

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 NON-REINFORCED (TPO) FLASHING **MSDS No. 10-4105**

Date of Preparation: 03/17/2011 Revision: 003

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide Non-Reinforced (TPO) Flashing
Chemical Formula: Mixture General Use: Roof and Waterproofing Flashing
Manufacturer: Carlisle SynTec Incorporated, 1285 Ritner Highway, Carlisle, PA 17013, Phone: 800-479-6832
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 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt *or* % vol
Propylene ethylene copolymer	9010-79-1	>70
Stabilizers (trade secret)		>5

Hazardous Ingredients:

	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
Ingredient	**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

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.

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Unusual Fire or Explosion Hazards: None
Hazardous Combustion Products: Toxic gases or vapors, such as carbon monoxide 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; slight waxy odor. (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): 0.95-1.05
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, 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: This product contains the following chemical(s) known to the state of California to cause cancer: None.

Section 16 - Other Information

Prepared By: Research & Development (BG)
Revision Notes: Issue date only

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

These products do not meet the criteria of hazardous chemicals as defined by the Federal Occupational Safety and Health Communication Standard 29 CFR 1910.1200(c). This form is being provided solely as general information and should not be construed as a determination that the product(s) are hazardous chemical(s).

GENERAL INFORMATION

Manufacturer: **TRUFAST, LLC**
02105 Wms. County Rd. 12-C
Bryan, OH 43506
Telephone No.: 419-636-6715

Supplier: **Mule-Hide Products Co., Inc.**
1195 Prince Hall Drive
Beloit, WI 53511
800-786-1492

PRODUCT IDENTIFICATION

Product Name:	Metal Fastener (screws)
Formula:	N/A

TYPICAL CHEMICAL COMPOSITION

Various metal, ferrous and nonferrous platings/coatings.

PRODUCT IDENTIFICATION

Physical State:	Solid
Appearance:	Various Shapes
Boiling Point:	N/A
Melting Point:	>1400 Degrees F
PH:	N/A
Odor:	None

Specific Gravity:	7.6 - 7.8
Vapor Pressure:	N/A
Vapor Density	N/A
Evaporation Rate:	N/A
% Volatile by Vol.:	N/A
Solubility in Water:	N/A

FIRE AND EXPLOSION HAZARD DATA

Not Applicable

REACTIVITY DATA

Stability:	Stable
Incompatibilities (Material to Avoid):	Strong Mineral Acids, Alkali or Oxidizers
Polymerization:	Will Not Occur
Hazardous Decomposition Products:	CO2 and /or CO

HEALTH HAZARD DATA

Health Effects/Signs & Symptoms:	N/A
Usual Route of Entry:	Sharp Metal Fastener May Cut Skin
Medical Conditions Possibly Aggravated:	None Known
Carcinogen Information:	None Known
Eye Contact:	None Known
Skin Contact:	None Known
Ingestion:	None Known
Inhalation:	None Known

OCCUPATIONAL EXPOSURE CONTROL MEASURES

Eye Protection:	Safety Glasses Recommended
Skin Protection:	Gloves Recommended
Ingestion:	Do not place in mouth.

SPILL, LEAK AND DISPOSAL INFORMATION

Waste Disposal Method(s):	Wastes are not hazardous as defined by the Resource Conservation and Recovery. Comply with state and local regulations for disposal of solid wastes. If you are unsure of the regulations, contact your local Public Health Department, or the local offices of the Environmental Protection Agency (EPA).

As of the date of preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable Federal and State laws. However, no warranty or representation with respect to such information is intended or given.

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.
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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

Revision: 001
MSDS 10-6235

Date of Preparation: August 2011

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Mule-Hide Poly ISO1™-CG
CAS Number: N/A **Other Designations: Polyiso**
Manufacturer: Hunter Panels LLC, 15 Franklin Street, Portland, ME 04101
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
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.
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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

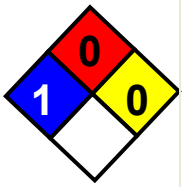
SECTION 16
OTHER INFORMATION

Label Information

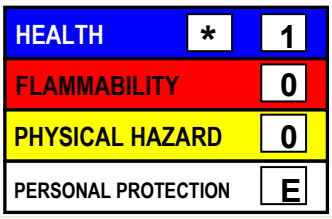
Δ WARNING!
Dust can cause irritation to eyes, skin and respiratory tract. Wear eye, skin and respiratory protection as necessary per working conditions. If eye contact occurs flush with water for 15 minutes. Do not ingest. If ingested, call physician. If cutting board with a power tool, use a wet or 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:
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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