

MATERIAL SAFETY DATA SHEET

ChemCo Systems, Inc., 2800 Bay Rd., Redwood City, CA 94063
Prepared by Dept. of Safety, Phone: 650.261.3790
24 Hour Emergency Phone: 800.424.9300 CHEMTREC

1. PRODUCT NAME:

CCS™ Grout, Control Joint - HB, Part A
Chemical Family: Epoxy resins, dituent, fillers.

2. HAZARDOUS INGREDIENTS

NAME	CAS No.	TLV	STEL	PEL	CONTENT
Epoxy resin	25068-38-6	none	none	none	58-68%
Epoxy resin	54208-63-8	none	none	none	6-11%
Aliphatic glycidyl ether	74398-71-3	none	none	none	8-12%
Dinonyl Phenol	1323-65-5	none	none	none	12-22%
Cresyl glycidyl ether	2210-79-9	none	none	none	2-6%

reference section 7, Health Hazard Data for LD (50)

3. PHYSICAL DATA:

Boiling Point:	>200 C	Water/Oil Distribution Coefficient:	N/D
Percent Volatile:	Slight	Solubility in Water:	Slight
Freezing Point	N/D	Specific Gravity:	1.14
Vapor Pressure@ 20C:	N/D	pH:	N/D
Vapor Density	Heavier than air	Evaporation Rate:	N/D
Odor Threshold	N/D	Odor	Slight
Appearance	Amber liquid		

N/D = Not Determined

4. FIRE AND EXPLOSION HAZARD DATA:

HMIS Flammability Rating:	1 - (Slight Hazard)		
Flash Point:	>92 C (200 F) PMCC		
Auto Ignition Temperature:	N/D		
Limits of Flammability:	LEL: N/D	UEL: N/D	
EXTINGUISHING MEDIA:	CARBON DIOXIDE, FOAM, DRY CHEMICAL AND WATER FOG		
SPECIAL FIRE & UNUSUAL HAZARDS:	At higher temperature vapors can cause pressure build-up in sealed containers. Use water to cool containers exposed to fire. Self-contained respirator equipment and full protective clothing required when smoke or fumes are generated. Electrical grounding not recommended.		

5. REACTIVITY DATA:

HMIS Reactivity Rating:	1 - (Slight Hazard)		
STABILITY:	This product requires another component to react at room temperature. Mix and use product in accordance with directions for safety. Excessive heat and fume generation can occur if improperly handled. Not sensitive to mechanical impact.		
INCOMPATIBILITY:	Strong acids, strong bases. Amines and mercaptans may initiate possible hazardous polymerization.		
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide and dioxide, aldehydes, various compounds from incomplete combustion.		
HAZARDOUS POLYMERIZATION:	May occur if product is not handled per instructions.		

6. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS AND LEAKS:	Ventilate area, eliminate all sources of ignition. Wear appropriate protective gear. Contain leak/spill. Salvage. Clean up residue with absorbent material.		
WASTE DISPOSAL METHOD:	Handle disposal of waste material in manner which complies with local, state, province, and federal regulations. Landfill if solidified or incinerate at agency approved waste-disposal facility.		

7. HEALTH HAZARD DATA:

HMIS Health Rating:	2 - (Moderate Hazard)	
Primary Route Of Entry:	Dermal	
Effects of Overexposure:		
Skin Contact:	Prolonged or repeated exposure may cause skin irritation and redness. Skin sensitization or allergic reaction may occur in some individuals.	
Eyes:	Contact may cause irritation, redness, tearing and blurred vision.	
Inhalation:	Vapors may cause severe irritation to nose, and mucous membranes.	
Ingestion:	Intake can cause gastro-intestinal irritation, nausea, vomiting and diarrhea.	
	LD (50) CAS 25068-38-6	11.4 g/kg (rat)
	LD (50) CAS 2210-79-9	11.4 g/kg (rat)
	LD (50) CAS 54208-63-8	11.4 g/kg (rat)
Chronic:	None known.	

8: FIRST AID:

Inhalation:	Remove victim from exposure. If difficulty with breathing, administer oxygen and seek immediate medical assistance.
Eyes:	Flush with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.
Skin:	Wash with soap and water; get medical attention if irritation persists.
Ingestion:	Do not induce vomiting, give at least two glasses of water; get immediate medical attention. If vomiting occur spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Do not give anything by mouth to an unconscious person.

9. SPECIAL PROTECTION INFORMATION:

HMIS Personal Protection Rating:	C (Safety Glasses, Gloves, Apron)	
Ventilation:	Ventilation is recommended. Air movement must be designed to insure turnover at all locations in work area to prevent build-up of heavy vapors.	
Personal Protection:	Use eye protection. Selection of specific items such as gloves, boots and apron will depend on the operation.	

10. ADDITIONAL INFORMATION:

DOT Proper Shipping Name:	Epoxy resin mixture
DOT Hazard Class or Division:	Not regulated
Identification Number:	N/A
Packing Group:	N/A
Labels Required:	N/A
California Prop. 65:	N/A
WHMIS Classification:	Class D, Div. II, Sub. B
Storage Conditions:	Keep containers tightly sealed. Store in dry and cool areas. Avoid freezing conditions.
Shelf life:	Indefinite.
Special Instructions:	Storage recommendations: Store at room temperature. Do not allow to freeze.

The information given herein is given in good faith. No warranty, expressed or implied, is made regarding the accuracy of these data or the results obtained from the use thereof. All materials may present unknown health hazards and must be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Consult ChemCo Systems Inc. for further information.

MSD152A11/05

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Prepared by Dept. of Safety, Phone: 650.261.3790

24 Hour Emergency Phone: 800.424.9300 CHEMTREC

1. PRODUCT NAME:

CCS™ Grout, Control Joint - HB, Part B
Chemical Family: Amino compounds, diluent, fillers.

2. HAZARDOUS INGREDIENTS

NAME	CAS No.	TLV	STEL	PEL	CONTENT
Nonyl Phenol	25154-52-3	none	none	none	72-78%
Amino ethyl piperazine (AEP)	140-31-8	none	none	none	20-30%
Diethylenetriamine	111-40-0	1ppm	none	1ppm	1-2%

reference section 7, Health Hazard Data for LD (50)

3. PHYSICAL DATA:

Boiling Point:	316 C (DNP)	Water/Oil Distribution Coefficient:	N/D
Percent Volatile:	negligible	Solubility in Water:	30%
Freezing Point	N/D	Specific Gravity:	0.95
Vapor Pressure@ 20C:	N/D	pH:	alkaline
Vapor Density	Heavier than air	Evaporation Rate:	N/D
Odor Threshold	N/D	Odor	Ammoniacal
Appearance	Straw-clear liquid		

N/D = Not Determined

4. FIRE AND EXPLOSION HAZARD DATA:

HMIS Health Rating: 1 - (Slight Hazard)

Flash Point: 99 C (210 F) (AEP) PMCC
Auto Ignition Temperature: N/D
Limits of Flammability: LEL: 1.8% @ 140 C UEL: N/D

EXTINGUISHING MEDIA:

CARBON DIOXIDE, FOAM, DRY CHEMICAL & WATER FOG.

SPECIAL FIRE & UNUSUAL HAZARDS: Self-contained respirator equipment and full protective clothing are required when smoke and fumes are generated. Electrical grounding is not recommended.

5. REACTIVITY DATA:

HMIS Reactivity Rating: 1 - (Slight Hazard)

STABILITY: Stable. This product must be mixed with another component to react. Not sensitive to mechanical impact.

INCOMPATIBILITY: Strong oxidizing agents, acids, isocyanates and organic peroxides may result in violent explosive reactions.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and dioxide, nitrogen oxides and various hydrocarbons from incomplete combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

6. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS AND LEAKS: Ventilate area. Wear appropriate protective gear. Contain leak/spill. Clean up residue with absorbent material. Wash down area with water and diluted acetic acid.

WASTE DISPOSAL METHOD: Handle disposal of waste material in manner which complies with local, state, province, and federal regulations. Landfill if solidified or incinerate at agency approved waste-disposal facility.

7. HEALTH HAZARD DATA:

HMIS Health Rating: 2 - (Moderate Hazard)

Primary Route Of Entry: Dermal, eyes ingestion.

Effects of Overexposure:

Inhalation:	Low degree of volatility. At higher temperatures, it is possible for vapors to be generated. Vapors are very disagreeable. This material may result in irritation of throat and lungs and an allergic type reaction in some individuals.
Eyes:	Contact can cause severe burn. At higher temperature vapors can cause severe irritation, redness, tearing or blurred vision.
Skin Contact:	Short single exposure may cause moderate irritation to mild burn. Prolonged or repeated exposure may cause a severe burn. May result in an allergic reaction or sensitization response in some individuals.
Skin Absorption:	Amine may be absorbed through the skin in moderately toxic amounts. LD(50) CAS 140-31-8 (AEP) 880mg/kg (Rabbit) LD (50) CAS 111-40-0 (DETA) 880mg/kg (Rabbit)
Ingestion:	Intake can cause gastrointestinal irritation, nausea, vomiting, diarrhea, headache and drowsiness. Can result in burns of mouth esophagus and stomach. LD (50) CAS 140-31-8 (AEP) 2140 mg/kg (Rat)
Chronic:	None known.

8: FIRST AID:

Eyes:	Flush eyes with water and/or 1% boric acid, lifting upper and lower lids occasionally for 30 minutes. Seek prompt medical attention.
Skin:	Wash with soap and water for at least 15 minutes. Remove contaminated clothing and wash before re-use. Destroy contaminated leather. Seek medical attention if irritation persists.
Ingestion:	Do not induce vomiting. Give large quantities of water or diluted water with acetic acid. Get immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquids into lungs. Do not give anything by mouth to an unconscious person.
Inhalation:	Remove victim from exposure. If difficulty with breathing; administer oxygen and seek immediate medical assistance.

9. SPECIAL PROTECTION INFORMATION:

HMIS Personal Protection Rating: C (Safety Glasses, Gloves, Apron)	
Ventilation	Ventilation at normal room temperature is a means of controlling vapor properly. If material is above 140 F, a positive pressure breathing apparatus is recommended.
Personal Protection:	Use eye protection and gloves. Selection of specific items such as gloves, boots and apron will depend on the operation. Wear respirator protection whenever airborne concentrations exceed TLV ceilings or TWA, use NIOSH approved respirators for listed hazard. Confined spaces, rooms or tanks are areas where concern for TLV's is especially important. Reference OSHA Regulation CFR 29 1910.134 for recommended respiratory protection.

10. ADDITIONAL INFORMATION:

DOT Proper Shipping Name:	N-aminoethyl piperazine mixture
DOT Hazard Class or Division:	8
Identification Number:	UN 2815
Packing group:	III
Labels Required:	CORROSIVE
WHMIS Classification:	Class D, Div. II, Sub. A, Class E.
WHMIS Labeling:	Test tube, hand.
Storage	Keep containers tightly sealed; store in cool and dry area.
Conditions:	Avoid freezing conditions.
Shelf life:	Indefinite
Special Instructions:	None.

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MSD152B11/05

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT TRADE NAME	Floor Dry, Solid-A-Sorb, Celatom MP grades
MANUFACTURER	EP Minerals, LLC., 9875 Gateway Dr., Suite 1000, Reno, NV 89521
TELEPHONE NO.	(775) 824 7600 (Monday – Friday 8:00 am PST – 5:00 pm PST)
CHEMICAL NAME	Diatomaceous Earth, Calcined
CHEMICAL FAMILY	Silica
MATERIAL USE	Industrial Absorbent
DATE OF PREPARATION	April 5, 2007

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Appearance//Color/Odor	A buff to off-white, low density granular product. There is no distinctive odor.
OSHA REGULATORY STATUS	This material is considered hazardous by the OSHA Hazard Communication Standard (29CFR 1910.1200)
POTENTIAL HEALTH EFFECTS	See below and Section 11 for additional information
Likely Routes of Exposure	See below
EYE	May cause irritation (tear formation and redness) if dust gets in eyes.
SKIN	Not absorbed by the skin, but may cause dryness if prolonged exposure.
INGESTION	Ingestion of small to moderate quantities is not considered harmful, but may cause irritation of the mouth, throat and stomach.
INHALATION	Acute inhalation can cause dryness of the nasal passage and lung congestion, coughing and general throat irritation. Chronic inhalation of dust should be avoided.
CHRONIC EFFECTS	Chronic inhalation of crystalline silica dust in excess of the Threshold Limit Value (TLV) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) (0.025mg/m ³) or in excess of the Permissible Exposure Limit (PEL) established by OSHA (0.050mg/m ³), over a prolonged number of years may contribute to silicosis. Crystalline silica, when inhaled as respirable dust, has been classified in a 1997 monograph (Volume 68, "Silica") of the International Agency for Research on Cancer (IARC) as carcinogenic to humans over prolonged and sustained exposure.
CONDITIONS AGGRAVATED BY EXPOSURE	Pre-existing diseases of the upper respiratory tract and lung such as bronchitis, emphysema, and asthma.
ENVIRONMENTAL EFFECTS	There are no significant environmental effects.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT IDENTIFICATION	APPROXIMATE CONCENTRATION (%)	C.A.S. NUMBERS	EINECS	R Factors
Diatomaceous Earth, Calcined (kieselguhr)	100%	91053-39-3	293-303-4	
Crystalline Silica (Cristobalite)	< 1%	14464-46-1	238-455-4	R48/20
Crystalline Silica (Quartz)	< 1%	14808-60-7	238-78-4	R48/20

SECTION 4: FIRST AID MEASURES

EYE	Flush eyes with generous quantities of water or eye rinse solution. Consult physician if irritation persists.
SKIN	Use moisture renewing lotions if dryness occurs.
INGESTION	Drink generous amounts of water to reduce bulk and drying effects.
INHALATION	Remove to fresh air. Blow nose to evacuate dust.
NOTE TO PHYSICIANS	No special notes.
ANTIDOTE	Not applicable

MATERIAL NAME	Floor Dry, Solid-A-Sorb, Celatom MP grades			Page 2 of 4
SECTION 5: FIRE FIGHTING MEASURES				
FLAMMABILITY	This material is not flammable.			
EXTINGUISHING MEDIA	Not applicable, the material is not flammable.			
FIRE-FIGHTING PROCEDURES	Not applicable, the material is not flammable.			
PROTECTIVE EQUIPMENT	Not applicable, the material is not flammable			
HAZARDOUS COMBUSTION PRODUCTS	Not applicable, the material does not combust.			
SPECIFIC PHYSICAL AND CHEMICAL HAZARDS	Not applicable, the material is not flammable.			
EXPLOSION DATA	Not applicable, the material is not explosive.			
SECTION 6: ACCIDENTAL RELEASE MEASURES				
PERSONAL PRECAUTIONS	If dust is present, use respirator fitted with particulate filter as specified in Section 8. Protect eyes with goggles.			
ENVIRONMENTAL PRECAUTIONS	This material is not a significant environmental concern.			
CONTAINMENT AND CLEANUP	Vacuum clean spillage, wet sweep or wash away. Avoid creating dust.			
SECTION 7: HANDLING AND STORAGE				
HANDLING	Minimize dust generation. Avoid contact with eyes. Avoid breathing dust. Repair or dispose of broken bags.			
STORAGE	Store in a dry place to maintain packaging integrity and product quality. Do not store near hydrofluoric acid. Observe all label precautions and warnings.			
SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION				
EXPOSURE GUIDELINES:				
Component	OSHA PEL	ACGIH TLV	MSHA PEL	NIOSH REL
Diatomaceous Earth, Calcined (kieselguhr) Crystalline Silica (Quartz) Crystalline Silica (Cristobalite)	See below 0.050 mg/m ³ 0.050 mg/m ³	See below 0.025 mg/m ³ 0.025 mg/m ³	See below 10/(% respirable crystalline silica +2) 0.5*10/(% respirable crystalline silica +2)	See below 0.025 mg/m ³ 0.025 mg/m ³
ENGINEERING CONTROLS	Local – Control dust within recommended TLV/PEL. Refer to ACGIH publication "Industrial Ventilation" or similar publications for design of ventilation systems.			
PERSONAL PROTECTIVE EQUIPMENT:	See below			
EYE / FACE	Goggles to protect from dust			
SKIN	No special equipment is needed.			
RESPIRATORY	Respirators fitted with filters certified to standard 42CFR84 under series N95 should be worn when dust is present. If the dust concentration is less than ten (10) times the Permissible Exposure Limit (PEL) use a quarter or half-mask respirator with a N95 dust filter or a single use dust mask rated N95. If dust concentration is greater than ten (10) times and less than fifty (50) times the PEL, a full-face piece respirator fitted with replaceable N95 filters is recommended. If dust concentration is greater than fifty (50) and less than two hundred (200) times the PEL use a power air-purifying (positive pressure) respirator with a replaceable N95 filter. If dust concentration is greater than two hundred (200) times the PEL use a type C, supplied air respirator (continuous flow, positive pressure), with full face piece, hood or helmet.			
GENERAL HYGIENE	Avoid breathing dust. Avoid contact with eyes. Wash hands after handling and before eating or drinking.			
For sampling silica dusts refer to NIOSH Analytical Method 7500 or OSHA method ID 142				

MATERIAL NAME	Floor Dry, Solid-A-Sorb, Celatom MP grades	Page 3 of 4
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, COLOR	Buff to off white granules	ODOR	Odorless
PHYSICAL STATE	Solid	pH (10% SUSPENSION)	7
VAPOR PRESSURE	Not applicable	VAPOR DENSITY	Not applicable
BOILING POINT	Not applicable	MELTING POINT	> 1300 °C
FLASH POINT	Not applicable	FLAMMABILITY	Not applicable
FLAMMABILITY LIMITS	Not applicable	AUTOIGNITION TEMPERATURE	Not applicable
DECOMPOSITION TEMPERATURE	> 1300 °C	SPEC. GRAVITY / REL. DENSITY	2.2
EVAPORATION RATE	Not applicable	COEFF. – WATER / OIL	Not applicable
ODOR THRESHOLD	Not applicable	SOLUBILITY – WATER	< 1%
PARTITION COEFFICIENT	Not applicable		

SECTION 10: STABILITY AND REACTIVITY

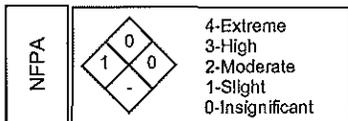
CHEMICAL STABILITY	Material is stable.
PHYSICAL HAZARDS	Material is not reactive.
CONDITIONS TO AVOID	Not applicable
INCOMPATIBLE MATERIALS	Hydrofluoric acid. Products containing silica may react violently with hydrofluoric acid.
HAZARDOUS DECOMPOSITION PRODUCTS	Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION

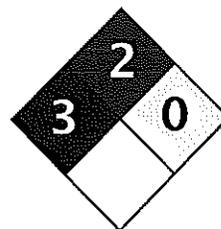
CHRONIC EFFECTS / CARCINOGENICITY	This granular product can contain respirable dust, composed primarily of amorphous silica but possibly with a small fraction of crystalline silica. Amorphous silica is not classifiable as carcinogenic to humans. Crystalline silica, when inhaled as respirable dust, has been classified as carcinogenic to humans over prolonged and sustained exposure. Long-term inhalation of respirable crystalline silica may contribute to the respiratory disease "silicosis", a non-cancerous lung disease. In a 1997 monograph (Volume 68, "Silica"), the International Agency for Research on Cancer (IARC) concluded that overall the epidemiological findings support increased risk of lung cancer from inhaled crystalline silica resulting from occupational exposure (classified in Group 1), while there was inadequate evidence in humans for the carcinogenicity of amorphous silica (classified in Group 3).
ROUTE OF EXPOSURE	Inhalation (chronic)
SYMPTOMS	Not available
LD50	Not available
IMMEDIATE AND DELAYED EFFECTS	No immediate effects. See CHRONIC EFFECTS for potential long-term effects when prolonged exposure to levels of crystalline silica in excess of OSHA PEL and ACGIH TLV.
CORROSIVENESS, SENSITIZATION, IRRITANCY	Not applicable
REPRODUCTIVE TOXICITY	Not available
TERATOGENICITY, MUTAGENICITY	Not available
TOXICOLOGICALLY SYNERGISTIC PRODUCTS	Inhaled smoke from tobacco products (chronic).

SECTION 12: ECOLOGICAL INFORMATION

CHARACTERISTICS	Non-biodegradable, inert, with little potential for bioaccumulation.
POSSIBLE EFFECTS	Diatomaceous earth products have shown some efficacy as a natural insecticide, but otherwise have no demonstrated toxicity in regards to aquatic or terrestrial life.

MATERIAL NAME	Floor Dry, Solid-A-Sorb, Celatom MP grades	Page 4 of 4					
SECTION 13: DISPOSAL CONSIDERATIONS							
WASTE DISPOSAL	If this material as supplied becomes a waste, use solid waste disposal common to landfill type operations or in slurry to sumps. Not considered a hazardous waste under RCRA (40CFR Part 261).						
PACKAGING DISPOSAL	Dispose of in accordance with applicable laws and regulations, typically solid waste disposal common to landfill type operations.						
SECTION 14: TRANSPORT INFORMATION							
BASIC SHIPPING INFORMATION	DOT shipping classification 55 (no restrictions). Technical name is "Diatomaceous Earth".						
ADDITIONAL INFORMATION	No special requirements or placarding necessary.						
SECTION 15: REGULATORY INFORMATION							
U.S. FEDERAL:							
OSHA	Under the Hazard Communication Standards, crystalline silica is classified as a toxic and hazardous substance.						
TSCA	Crystalline silica appears on the EPA TSCA inventory list, but is not regulated.						
CERCLA	Crystalline silica is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR 302.						
SARA TITLE III	Not listed.						
NTP	Respirable crystalline silica, primarily quartz dusts occurring in industrial and occupational settings, is classified as a carcinogen.						
INTERNATIONAL:							
IARC	"Inhaled crystalline silica from occupational sources" -- Group 1 -- is classified in IARC as a carcinogen.						
WHMIS Classification	Because it is naturally-occurring, and because the respirable crystalline silica content of this product is < 0.1%, it is not regulated by WHMIS						
WHMIS Ingredient Disclosure List	Included for disclosure at 1% or greater. Meets criteria for disclosure at 0.1% or greater.						
EEC Label (Risk/Safety Phrases)	R48/20, S22, S38						
SECTION 16: OTHER INFORMATION							
	 <p>4-Extreme 3-High 2-Moderate 1-Slight 0-Insignificant</p>	<table border="1"> <tr> <td rowspan="4">HMIS</td> <td>* Health</td> </tr> <tr> <td>0 Flammability</td> </tr> <tr> <td>0 Reactivity</td> </tr> <tr> <td>E Protective Equipment</td> </tr> </table>	HMIS	* Health	0 Flammability	0 Reactivity	E Protective Equipment
HMIS	* Health						
	0 Flammability						
	0 Reactivity						
	E Protective Equipment						
ORIGINAL ISSUE DATE	November 18, 1985						
REVISION DATE	April 5, 2007						
REVISION NO.	10						

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Health	3
Fire	2
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Acetic acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetic acid

Contact Information:

Catalog Codes: SLA3784, SLA1438, SLA2101, SLA3604, SLA1258

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

CAS#: 64-19-7

US Sales: **1-800-901-7247**

RTECS: AF1225000

International Sales: **1-281-441-4400**

TSCA: TSCA 8(b) inventory: Acetic acid

Order Online: ScienceLab.com

CI#: Not applicable.

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

Synonym: Acetic acid; glacial acetic acid

International CHEMTREC, call: 1-703-527-3887

Chemical Name: Acetic Acid, Glacial

For non-emergency assistance, call: 1-281-441-4400

Chemical Formula: C₂H₄O₂

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetic acid	64-19-7	100

Toxicological Data on Ingredients: Acetic acid: ORAL (LD50): Acute: 3310 mg/kg [Rat], 4960 mg/kg [Mouse], 3530 mg/kg [Rat]. DERMAL (LD50): Acute: 1060 mg/kg [Rabbit]. VAPOR (LC50): Acute: 5620 ppm 1 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to kidneys, mucous membranes, skin, teeth.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 463°C (865.4°F)

Flash Points: CLOSED CUP: 39°C (102.2°F). OPEN CUP: 43°C (109.4°F).

Flammable Limits: LOWER: 4% UPPER: 19.9%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat.

Slightly flammable to flammable in presence of oxidizing materials, of metals.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of oxidizing materials.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Reacts with metals to produces flammable hydrogen gas.

It will ignite on contact with potassium-tert-butoxide.

A mixture of ammonium nitrate and acetic acid ignites when warmed, especially if warmed.

Special Remarks on Explosion Hazards:

Acetic acid vapors may form explosive mixtures with air.

Reactions between acetic acid and the following materials are potentially explosive: 5-azidotetrazole, bromine pentafluoride, chromium trioxide, hydrogen peroxide, potassium permanganate, sodium peroxide, and phosphorus trichloride.

Dilute acetic acid and dilute hydrogen can undergo an exothermic reaction if heated, forming peracetic acid which is explosive at 110 degrees C.

Reaction between chlorine trifluoride and acetic acid is very violent, sometimes explosive.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Flammable liquid. Corrosive liquid.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container.

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Gloves (impervious).

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 10 STEL: 15 (ppm) [Australia]

TWA: 25 STEL: 27 (mg/m³) [Australia]

TWA: 10 STEL: 15 (ppm) from NIOSH

TWA: 25 STEL: 37 (mg/m³) from NIOSH

TWA: 10 STEL: 15 (ppm) [Canada]

TWA: 26 STEL: 39 (mg/m³) [Canada]

TWA: 25 STEL: 37 (mg/m³)

TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [United States] [1999]

TWA: 10 (ppm) from OSHA (PEL) [United States]

TWA: 25 (mg/m³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent, vinegar-like, sour (Strong.)

Taste: Vinegar, sour (Strong.)

Molecular Weight: 60.05 g/mole

Color: Colorless. Clear (Light.)

pH (1% soln/water): 2 [Acidic.]

Boiling Point: 118.1°C (244.6°F)

Melting Point: 16.6°C (61.9°F)

Critical Temperature: 321.67°C (611°F)

Specific Gravity: 1.049 (Water = 1)

Vapor Pressure: 1.5 kPa (@ 20°C)

Vapor Density: 2.07 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.48 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.2

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Easily soluble in cold water, hot water.

Soluble in diethyl ether, acetone.

Miscible with Glycerol, alcohol, Benzene, Carbon Tetrachloride.

Practically insoluble in Carbon Disulfide.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, metals, acids, alkalis.

Corrosivity:

Highly corrosive in presence of stainless steel(304).

Slightly corrosive in presence of aluminum, of copper.

Non-corrosive in presence of stainless steel(316).

Special Remarks on Reactivity:

Reacts violently with strong oxidizing agents, acetaldehyde, and acetic anhydride. Material can react with metals, strong bases, amines, carbonates, hydroxides, phosphates, many oxides, cyanides, sulfides, chromic acid, nitric acid, hydrogen peroxide, carbonates, ammonium nitrate, ammonium thiosulfate, chlorine trifluoride, chlorosulfonic acid, perchloric acid, permanganates, xylene, oleum, potassium hydroxide, sodium hydroxide, phosphorus isocyanate, ethylenediamine, ethylene imine.

Special Remarks on Corrosivity: Moderate corrosive effect on bronze. No corrosion data on brass

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 3310 mg/kg [Rat].

Acute dermal toxicity (LD50): 1060 mg/kg [Rabbit].

Acute toxicity of the vapor (LC50): 5620 1 hours [Mouse].

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

May cause damage to the following organs: kidneys, mucous membranes, skin, teeth.

Other Toxic Effects on Humans:

Extremely hazardous in case of inhalation (lung corrosive).

Very hazardous in case of skin contact (irritant), of ingestion, .

Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material and may cause reproductive effects based on animal data. No human data found.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin: Extremely irritating and corrosive. Causes skin irritation (reddening and itching, inflammation). May cause blistering, tissue damage and burns.

Eyes: Extremely irritating and corrosive. Causes eye irritation, lacrimation, redness, and pain. May cause burns, blurred vision, conjunctivitis, conjunctival and corneal destruction and permanent injury.

Inhalation: Causes severe respiratory tract irritation. Affects the sense organs (nose, ear, eye, taste), and blood. May cause chemical pneumonitis, bronchitis, and pulmonary edema. Severe exposure may result in lung tissue damage and corrosion (ulceration) of the mucous membranes. Inhalation may also cause rhinitis, sneezing, coughing, oppressive feeling in the chest or chest pain, dyspnea, wheezing, tachypnea, cyanosis, salivation, nausea, giddiness, muscular weakness.

Ingestion: Moderately toxic. Corrosive. Causes gastrointestinal tract irritation (burning and pain of the mouth, throat, and abdomen, coughing, ulceration, bleeding, nausea, abdominal spasms, vomiting, hematemesis, diarrhea. May Also affect the liver (impaired liver function), behavior (convulsions, giddines, muscular weakness), and the urinary system - kidneys (Hematuria, Albuminuria, Nephrosis, acute renal failure, acute tubular necrosis). May also cause dyspnea or asphyxia. May also lead to shock, coma and death.

Chronic Potential Health Effects:

Chronic exposure via ingestion may cause blackening or erosion of the teeth and jaw necrosis, pharyngitis, and gastritis. It may also behavior (similar to acute ingestion), and metabolism (weight loss).

Chronic exposure via inhalation may cause asthma and/or bronchitis with cough, phlegm, and/or shortness of breath . It may also affect the blood (decreased leukocyte count), and urinary system (kidneys).

Repeated or prolonged skin contact may cause thickening, blackening, and cracking of the skin.

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 423 mg/l 24 hours [Fish (Goldfish)]. 88 ppm 96 hours [Fish (fathead minnow)]. 75 ppm 96 hours [Fish (bluegill sunfish)]. >100 ppm 96 hours [Daphnia].

BOD5 and COD: BOD-5: 0.34-0.88 g oxygen/g

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid.

Class 8: Corrosive material

Identification: : Acetic Acid, Glacial UNNA: 2789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

New York release reporting list: Acetic acid

Rhode Island RTK hazardous substances: Acetic acid

Pennsylvania RTK: Acetic acid

Florida: Acetic acid

Minnesota: Acetic acid

Massachusetts RTK: Acetic acid

New Jersey: Acetic acid

California Director's List of Hazardous Substances (8 CCR 339): Acetic acid

TSCA 8(b) inventory: Acetic acid

CERCLA: Hazardous substances.: Acetic acid: 5000 lbs. (2268 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:**WHMIS (Canada):**

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

CLASS E: Corrosive liquid.

DSCL (EEC):

R10- Flammable.

R35- Causes severe burns.

S23- Do not breathe gas/fumes/vapour/spray

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S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: H

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves (impervious).

Synthetic apron.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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