Gebauer Company

SAFETY DATA SHEET (SDS)

Section 1: IDENTIFICATION

TRADE NAME	**GEBAUER'S ETHYL CHLORIDE®**	**MANUFACTURER**	Gebauer Company 4444 East 153 Street Cleveland, Ohio 44128
CHEMICAL NAME	Ethyl Chloride	**CONTACT INFORMATION**	Toll Free: (800) 321-9348 Phone: (216) 518-3030 Fax: (216) 581-4970
RECOMMENDED USE	Topical Anesthetic	**IN CASE OF EMERGENCY**	**CHEMTREC - (800) 242-9300 or (703) 527-3887**
FORMULA	C_2H_5Cl	**CHEMICAL FAMILY**	Halogenated Hydrocarbon

Section 2: HAZARDS IDENTIFICATION

Health Rating	2 - Moderate
Flammability Rating	4 - Acute
Reactivity Rating	0 - None
Special Rating	None
Lab Protective Equipment	Neoprene or Viton gloves, lab coat, goggles or face shield, vent hood.
Storage Color Code	Red (Flammable)

Hazard Category	Signal Word	Hazard Statement	Pictogram	Precautionary Statement
Flammable Gas (Category 1)	Danger	Extremely flammable gas		Keep away from heat/sparks/open flames/hot surfaces/cautery equipment – No smoking.
Compressed Gas	Warning	Contains gas under pressure; may explode if heated		Store is a well-ventilated place.
Eye Irritation (Category 2B)	Warning	Causes eye irritation	N/A	If product gets into eyes, see the Section 4: First Aid Measures.
Acute Toxicity (Category 4)	Warning	Harmful if inhaled		If inhaled, see the Section 4: First Aid Measures.

Cause		Effects
Potential Acute Health Effects	Inhalation	Headache, dizziness, nausea, vomiting, loss of coordination and disorientation may produce narcotic and anesthetic effects. May produce central nervous system depression, respiratory paralysis, or fatal coma with respiratory or cardiac arrest. May sensitize the myocardium to endogenous epinephrine, causing dangerous dysrhythmias. Although absorbed through lungs and skin, it also is rapidly given off through the lungs.
	Ingestion	Unlikely route of exposure due to gaseous nature.
	Skin Contact	Rapid evaporation of liquid may cause frostbite. Symptoms of frostbite are blanching of the skin, cold feeling numbness. Cutaneous sensitization may occur, but is extremely rare. Freezing can occasional alter pigmentation. A single prolonged skin exposure is not likely to result in absorption of harmful amounts
	Chronic Exposure	Long term exposure to high levels may produce the following: loss of muscle coordination, involuntary eye movements, tremors, speech disturbance, sluggish reflexes and hallucinations. These symptoms are alleviated when the overexposure is ended.
	Aggravation of Preexisting Conditions	The defatting properties of Ethyl Chloride may aggravate existing dermatitis.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Synonyms	CAS Number	Concentration	OSHA PEL	ACGIH TLV-TWA
Ethyl Chloride	Chloroethane, Hydrochloric Ether	75-00-3	>99	1000ppm	100ppm

Section 4: FIRST AID MEASURES

Inhalation	Immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.
Ingestion	Unlikely route of exposure due to gaseous nature.
Skin Contact	For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105ºF (41ºC). In case of massive exposure, remove contaminated clothing while showering with warm water. Call a physician.
Eye Contact	For exposure to liquid, check for and remove any contact lenses. Immediately flush eyes thoroughly with warm water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. See a physician, preferably an ophthalmologist, immediately.

Section 5: FIRE FIGHTING MEASURES

Special Fire Fighting Procedures

DANGER! Flammable liquid and gas. Evacuate all personnel from danger area. Use water spray to cool fire-exposed containers, structures and equipment. Use water spray, carbon dioxide or dry chemicals as extinguishing media. Do not use stream of water because it will scatter and spread the fire. Remove sources of ignition if without risk. Remove all containers from fire area if without risk; continue cooling water spray while moving containers. Do not extinguish any flames emitted from containers, stop flow of material if without risk, or allow flames to burn out. Self contained breathing apparatus may be required by rescue workers.

Unusual Fire and Explosion Hazards

Flammable liquid and gas. Very dangerous fire hazard when exposed to heat, flame or powerful oxidizers. Ethyl chloride is heavier than air and the vapors may hug the ground, making distant ignition and flashback possible. During a fire, toxic gases (hydrogen chloride, chlorine and phosgene) may be produced. Direct exposure to flames may cause container explosion. Static discharge may ignite ethyl chloride.

Section 6: ACCIDENTAL RELEASE MEASURES

Spill and Leak Response

Flammable liquid and Gas. Eliminate all sources of ignition. Allow spilled ethyl chloride to evaporate, ventilate enclosed areas. In case of large spill, evacuate all personnel from area. For Entry Into Unknown Concentrations That Could Be IDLH (≥ 3800 ppm): Full Face Self Contained Breathing Apparatus

Waste Disposal Method

Comply with federal, state and local laws; return unused quantities to Gebauer Company by making appropriate arrangements for pickup and transportation.

Section 7: HANDLING AND STORAGE

Storage Precautions

Store in cool, dry well ventilated area. Protect against physical damage. Do not subject to temperatures above 120ºF (50ºC). Do not store near high frequency ultrasound equipment or non-explosion proof electrical equipment.

Handling Precautions

Use in well-ventilated areas. Do not use near temperatures above 120ºF (50ºC). Do not use with cautery or non-explosion proof electrical equipment. Do not use near open flame.

Section 8: EXPOSURE CONTROLS – PERSONAL PROTECTION

Engineering Controls	Use with adequate ventilation.
Respiratory Protection	For clinical setting: minimize inhalation of vapors by patient, especially when applying to head and neck. For large spills (≥ 1000 ppm twa and ≤ 3800 ppm instantaneous exposure): full face, positive pressure , self-contained breathing apparatus should be available for emergency use.
Skin Protection	Wear neoprene or viton gloves for exposures ≥1000 ppm TWA and ≤3800 ppm instantaneous exposure.
Eye Protection	Splash goggles or safety glasses.
Exposure Limits	OSHA – 1000ppm PELACGLIH – 100 ppm TLV, A3 IDHL – 3800 ppm LEL ACGIH – 100ppm TLV

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	54.1°F (12.3°C)	**Specific Gravity (@ 68°F):**	0.8939
Freezing Point:	-213.5°F (-136.4°C)	**pH:**	Essentially neutral
Evaporation Rate (Butyl Acetate = 1):	Greater than 1	**Solubility in Water**	Slight by slow hydrolysis
Vapor Density (Air = 1 @ 70°F):	2.23	**Odor:**	Ethereal
Vapor Pressure (@ 68°F):	20.1 psia (5.4 psig)	**Appearance:**	Clear and colorless liquid or gas
Flash Point:	-58°F (-50°C) TCC; -45°F (-43°C) TOC	**Flammable Limits in Air (% by volume):**	Lower: 3.8% Upper: 15.4%
Autoignition Temperature:	966°F (519°C)	**MOLECULAR WEIGHT**	64.52

Section 10: STABILITY AND REACTIVITY

Stability	Normally stable in air. In presence of moisture, slowly hydrolyses forming hydrochloric acid.
Hazardous Decomposition Products	Carbon monoxide, hydrogen chloride gas, phosgene gas, and carbon dioxide.
Incompatible Materials	Alkali metals such as sodium, and potassium, powdered metals such as aluminum, zinc and magnesium and strong oxidizers.
Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Contact with incompatible materials and exposure to heat, sparks and other sources of ignition and exposure to high heat.

Section 11: TOXICOLOGICAL INFORMATION

Routes of Exposure:	
Acute Inhalation LC50	60,632 ppm (rat) (2 hr.) Anesthetic effects.
Skin Irritation	Produces frostbite.
Eye Irritation	Produces frostbite.
Chronic Effects	Not listed as a carcinogen or suspected carcinogen by NTP or OSHA. Listed under IARC in Group 3: Not classifiable.
Effects of overexposure:	
Acute	Inhalation: Can produce varying degrees of intoxication; i.e. loss of coordination, drunkenness, possible convulsions, abdominal cramps, nausea and coma. It has been reported that concentrated vapors can produce narcotic and anesthetic effects in humans and may produce deep or even fatal anesthesia. Inhalation may also be irritating to the respiratory tract. Eye/Skin: Liquid spilled on skin may cause possible frostbite. For eye contact, there are no specific known effects, but the effects may be the same as contact with skin.
Sub Chronic	Increased liver weights were observed in rats and mice after exposure to 2500, 5000, 10,000 and 19,000 ppm for 6 hours/day, 5 days/week for 13 weeks. No other effects were observed in the study.
Carcinogenicity	Carcinomas of the uterus were observed in female mice exposed to 15,000 ppm during the course of a 2-year inhalation study.

Section 11: TOXICOLOGICAL INFORMATION (Continued)

Mutagenesis	Has been shown to be mutagenic in bacteria, with and without activation. A 2-year study in mice did not yield increases in bone marrow micronuclei.
Reproductive/Developmental	No teratogenic effects were observed in mice exposed to 500, 1500 or 5000 ppm during organogenesis . No effects on reproductive organs were observed after 13 weeks exposure to vapors.

Section 12: ECOLOGICAL INFORMATION

Environmental Stability	Gas is dissipated rapidly in a ventilated area.
Effect on Plants and Animals	Suspected to have toxic effects with long term exposure to: central nervous system depression, liver and kidney. No information on adverse effects to plant life except for frost produced upon evaporation.
Effect on Aquatic Life	No evidence currently available.

Section 13: DISPOSAL CONSIDERATIONS

Waste disposal must be in accordance with appropriate Federal, State and local regulations.

Section 14: TRANSPORT INFORMATION

Proper Shipping Name	Ethyl Chloride
Hazard Class	2.1 (Flammable Gas)
Identification Number	UN 1037
Packing Group	I (49 CFR 173.322)
Reportable Quantity	100 LBS./45.4 Kg
DOT Label(s) Required	Flammable Gas
Canada TDG Description	Ethyl Chloride, Class 2.1, UN1037 **Special Commodity**

Section 15: REGULATORY INFORMATION

USA TSCA:	Listed	**Canada DSL:**	Listed	**Korea ECL:**	Listed
Europe EINECS:	Listed	**Australia AICS:**	Listed	**Japan MITI (ENCS):**	Listed

SARA Title III	Section 302: Not listed. Sections 311, 312: Acute health hazard. Section 313: Listed.
CERCLA	Listed with a reportable quantity of 100 lbs.

State Regulatory Information:

Ethyl Chloride is covered under the specific State regulations listed.

Alaska	Designated Toxic and Hazardous Substances
California	Permissible Exposure Limits for Chemical Contaminants
Florida	Substance List
Massachusetts	Substance List
Michigan	Critical Materials Register
Minnesota	List of Hazardous Substances
Missouri	Employer Information/Toxic Substance List
New Jersey	Right to Know Hazardous Substance List
New York	Hazardous Substance List
Pennsylvania	Regulated Substance List
Rhode Island	Hazardous Substance
Texas	Hazardous Substance List
West Virginia	Hazardous Substance List
Wisconsin	Toxic and Hazardous Substances

CANADA Regulations (WHMIS):
Class A – Compressed Gas
Class B1 – Flammable Gas
Canadian NPRI – Listed

EUROPEAN UNION CLASSIFICATION:
Hazard Symbol: F+; Xn
Risk Phrases: R12-40-52/53
Safety Phrases: S(2-) 9-16-33-36/37-61

California Proposition 65:	Ethyl Chloride is on the California Proposition 65 lists. This product contains a chemical known to the State of California to cause cancer.

Section 16: OTHER INFORMATOIN

This MSDS was revised and updated as of 04/23/2013 by Gebauer Company.

INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET IS OFFERED WITHOUT CHARGE FOR USE BY TECHNICALLY QUALIFIED PERSONNEL AT THEIR DISCRETION AND RISK. ALL STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON TESTS AND DATA WHICH WE BELIEVE TO BE RELIABLE, BUT THE ACCURACY OR COMPLETENESS THEREOF IS NOT GUARANTEED AND NO WARRANTY OF ANY KIND IS MADE WITH RESPECT THERETO. THIS INFORMATION IS NOT INTENDED AS A LICENSE TO OPERATE UNDER OR A RECOMMENDATION TO PRACTICE OR INFRINGE ANY PATENT OF THIS COMPANY OR OTHER COVERING ANY PROCESS, COMPOSITION OF MATTER OR USE. SINCE THE COMPANY SHALL HAVE NO CONTROL OF THE USE OF THE PRODUCT DESCRIBED HEREIN, THE COMPANY ASSUMES NO LIABILITY OF LOSS OR DAMAGE INCURRED FROM THE PROPER OR IMPROPER USE OF SUCH PRODUCT.