

VINYL ETHYL ETHER

VEE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Ether, vinyl ethyl Ethyl vinyl ether Vinamar	Liquid Colorless Characteristic, disagreeable
Floats on water. Flammable.	
<p>Evacuate. Keep people away. Avoid contact with vapor or liquid. Wear goggles, self-contained breathing apparatus, and rubber gloves. Shut off ignition sources and call fire department. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	<p>FLAMMABLE Flash back along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Extinguish with alcohol foam, carbon dioxide, dry chemical, foam, or carbon tetrachloride. Water may be ineffective on fire. Cool exposed containers with water.</p>
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>LIQUID OR VAPOR Irritating to skin and eyes. Harmful if swallowed or inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.</p>
Water Pollution	<p>Effects of low concentrations on aquatic life are unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Skim; Pump;
Dredge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: CH₂CHOC₂H₅
2.3 IMO/UN Designation: 3.1/1302
2.4 DOT ID No.: 1302
2.5 CAS Registry No.: 109-92-2
2.6 NAERG Guide No.: 127P
2.7 Standard Industrial Trade Classification: 51616

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Full face mask, self-contained breathing apparatus, eye protection, and rubber gloves.
- 3.2 **Symptoms Following Exposure:** INHALATION OR INGESTION: Excitement followed by unconsciousness and respiratory paralysis. CNS depression. EYES: May cause irritation and transient injury to cornea. SKIN: Prolonged contact can cause tissue defatting and dehydration leading to dermatitis.
- 3.3 **Treatment of Exposure:** Call a doctor. INHALATION: Remove from contaminated area and administer artificial respiration and oxygen if necessary. EYES: Flush with copious amounts of water. SKIN: Wash with copious amounts of water. INGESTION: Gastric lavage and saline cathartics.
- 3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 **Toxicity by Ingestion:** Grade 1; LD₅₀ = 5 to 15 g/kg.
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Prolonged contact with skin may cause dermatitis. Possible liver damage may occur with repeated use.
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause reddening of skin.
3.12 **Odor Threshold:** Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** <-50°F C.C.
- 4.2 **Flammable Limits in Air:** 1.7% - 28%
- 4.3 **Fire Extinguishing Agents:** Alcohol foam, CO₂, dry chemical or carbon tetrachloride
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective
- 4.5 **Special Hazards of Combustion Products:** Currently not available
- 4.6 **Behavior in Fire:** Explosive hazard
- 4.7 **Auto Ignition Temperature:** 395°F
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 26.2 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 8.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:** No reaction
- 5.3 **Stability During Transport:** Can react vigorously with oxidizing materials
- 5.4 **Neutralizing Agents for Acids and Caustics:** Currently not available
- 5.5 **Polymerization:** May polymerize.
- 5.6 **Inhibitor of Polymerization:** Currently not available

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 0
Human Contact hazard: 0
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
- 7.2 **Storage Temperature:** Currently not available
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** C
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 49 CFR Category: Flammable liquid
- 8.2 49 CFR Class: 3
- 8.3 49 CFR Package Group: I
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification:
- | | |
|---------------------------|----------------|
| Category | Classification |
| Health Hazard (Blue)..... | 2 |
| Flammability (Red)..... | 4 |
| Instability (Yellow)..... | 2 |
- 8.6 EPA Reportable Quantity: Not listed.
- 8.7 EPA Pollution Category: Not listed.
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 72.104
- 9.3 **Boiling Point at 1 atm:** 96°F = 35.6°C = 308.8°K
- 9.4 **Freezing Point:** -175°F = -115°C = 158.2°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 0.7589 at 20°C
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 2.5
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** (Estimated) 165 Btu/lb = 91.8 cal/g = 3.84 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** -14,326 Btu/lb = -7959 cal/g = -333 X 10⁵ J/kg
- 9.14 **Heat of Decomposition:** Currently not available
- 9.15 **Heat of Solution:** Currently not available
- 9.16 **Heat of Polymerization:** Currently not available
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
63	47.592		C		C		C
64	47.546		U		U		U
65	47.502		R		R		R
66	47.459		R		R		R
67	47.417		E		E		E
68	47.376		N		N		N
			T		T		T
			L		L		L
			L		L		L
			Y		Y		Y
			N		N		N
			O		O		O
			T		T		T
			A		A		A
			V		V		V
			A		A		A
			I		I		I
			L		L		L
			A		A		A
			B		B		B
			L		L		L
			A		A		A
			B		B		B
			L		L		L
			E		E		E

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I	35	4.011	35	0.05335		C
	N	40	4.469	40	0.05898		U
	S	45	4.979	45	0.06520		R
	O	50	5.548	50	0.07208		R
	L	55	6.181	55	0.07968		E
	U	60	6.887	60	0.08809		N
	B	65	7.673	65	0.09738		T
	L	70	8.549	70	0.10765		L
	E	75	9.525	75	0.11901		Y
		80	10.613	80	0.13156		N
		85	11.824	85	0.14544		O
		90	13.174	90	0.16078		T
		95	14.678	95	0.17774		A
							V
							A
							I
							L
							A
							B
							L
							E