METHYL DICHLOROACETATE

MDC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid	Colorless	Ethereal odor
Dichloroacetic acid, methyl ester Methyl dichloroethanoate	Sinks in water.		

KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR.
Wear self-contained breathing apparatus and full protective clothing.
Call fire department.
Notify local health and pollution control agencies.

Fire

Combustible.
Toxic fumes emitted when heated.
Wear self-contained breathing apparatus and full protective clothing.
Extinguish with CO_2, dry chemical, or foam.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Harmful if inhaled or absorbed through the skin.
Highly irritating to skin, eyes, and mucous membranes.
Hydrolizes upon contact with moisture to form vapors corrosive to tissue.
Remove victim to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Harmful if swallowed or absorbed through the skin.
Corrosive to eyes, skin, nose, throat, and upper respiratory tract.
Hydrolyzes upon contact with moisture to form vapors corrosive to skin.
IF IN EYES: hold eyelids open, flush with plenty of water for at least 15 minutes.
Remove contaminated clothing and shoes; flush affected areas with water.
IF SWALLOWED: do nothing except keep victim warm.
DO NOT INDUCE VOMITING.

Water Pollution

Effects of low concentrations on aquatic life are not known.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $Cl_2CHCO_2CH_3$
2.3 IMO/UN Designation: 6.1/2299
2.4 DOT ID No.: 2299
2.5 CAS Registry No.: 116-54-1
2.6 NAERG Guide No.: 155
2.7 Standard Industrial Trade Classification: 51372

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Approved respirator, chemical-resistant gloves, safety goggles or safety faceshield (8 inch minimum), other protective clothing.
3.2 Symptoms Following Exposure: Extremely destructive to the eyes, nose, throat, and upper respiratory tract. May be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.
3.3 Treatment of Exposure: Call a physician. EYES: Hold eyelids open, flush with water for at least 15 minutes. SKIN: Remove contaminated clothing, flush affected areas with water. INHALATION: Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. INGESTION: Do nothing except keep victim warm. DO NOT INDUCE VOMITING.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause severe irritation of eyes and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.
3.11 Liquid or Solid Characteristics: Severe skin irritant. Causes second and third degree burns on short contact and is very injurious to the eyes.
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: 176°F C.C.
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: CO_2, dry chemical powder, or foam.
4.4 Fire Extinguishing Agents Not to Be Used: Currently not available
4.5 Special Hazards of Combustion Products: Produces toxic fumes of phosgene and HCl.
4.6 Behavior in Fire: Currently not available
4.7 Auto Ignition Temperature: Currently not available
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 11.9 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 6.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: Hydrolyzes to form corrosive products.
5.2 Reactivity with Common Materials: No reaction.
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

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: Currently not available
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: (2)
Human Oral hazard: (1)
Human Contact hazard: I
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: 99+%
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: Currently not available
7.6 Ship Type: Currently not available
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Keep Away From Food
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: III
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	-
Flammability (Red).....	1
Instability (Yellow).....	1

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: 142.97
9.3 Boiling Point at 1 atm: 289°F = 143°C = 416°K
9.4 Freezing Point: -62°F = -52°C = 221°K
9.5 Critical Temperature: Currently not available
9.6 Critical Pressure: Currently not available
9.7 Specific Gravity: 1.3774 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: 4.93
9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
9.12 Latent Heat of Vaporization: Currently not available
9.13 Heat of Combustion: Currently not available
9.14 Heat of Decomposition: Currently not available
9.15 Heat of Solution: Currently not available
9.16 Heat of Polymerization: Not pertinent
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
68	85.990		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE

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
	CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE	0	0.153
						25	0.158
						50	0.163
						75	0.168
						100	0.173
						125	0.178
						150	0.183
						175	0.188
						200	0.192
						225	0.197
						250	0.201
						275	0.205
						300	0.210
						325	0.214
						350	0.218
						375	0.222
						400	0.226
						425	0.230
						450	0.233
						475	0.237
						500	0.241
						525	0.244
						550	0.247
						575	0.251
						600	0.254