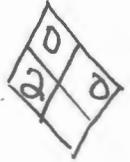


Chloroform



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name Chloroform

Product Code VW1430

Manufacturer EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027

Effective Date 3/3/2003

Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.

For More Information Call
856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call
800-424-9300 CHEMTREC
(USA)
613-996-6666 CANUTEC
(Canada)
24 Hours/Day: 7 Days/Week

Synonym TRICHLOROMETHANE
Material Uses Analytical reagent.
Chemical Solvent.
Family

Section 2. Composition and Information on Ingredients

| Component | CAS # | % by Weight |
|------------|---------|-------------|
| Chloroform | 67-66-3 | 100 |

+ Section 3. Hazards Identification

Physical State and Appearance Liquid. (Colorless.)

Emergency Overview

WARNING!
HARMFUL IF INHALED OR SWALLOWED.
CAUSES EYE IRRITATION.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, HEART, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
MAY CAUSE SKIN IRRITATION.
POSSIBLE CANCER HAZARD.
MAY CAUSE CANCER BASED ON ANIMAL DATA.
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

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

Potential Acute Health Effects

Eyes Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.
Skin May be hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation Hazardous in case of inhalation.

Ingestion Hazardous in case of ingestion.

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Potential Chronic Health Effects

Carcinogenic Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by
Effects ACGIH, 2B (Possible for human.) by IARC, 3 (Possible for human.) by
European Union.

Additional information See Toxicological Information (section 11)

Medical Conditions Repeated exposure to a highly toxic material may produce general
Aggravated by deterioration of health by an accumulation in one or many human organs.
Overexposure:

Section 4. First Aid Measures

Eye Contact Check for and remove any contact lenses. Immediately flush eyes with
running water for at least 15 minutes, keeping eyelids open. Cold water
may be used. Get medical attention immediately.

Skin Contact In case of contact, immediately flush skin with plenty of water. Cover the
irritated skin with an emollient. Remove contaminated clothing and shoes.
Cold water may be used. Wash clothing before reuse. Thoroughly clean
shoes before reuse. Get 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.

Ingestion If conscious, drink water and induce vomiting immediately as directed by
medical personnel. NEVER give an unconscious person anything to
ingest.

Section 5. Fire Fighting Measures

Flammability of the Product May be combustible at high temperature.

Auto-ignition Temperature Not available.

Flash Points Not available.

Flammable Limits Not available.

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

Fire Hazards in Presence of Various Substances Not available.

Explosion Hazards in Presence of Various Substances Risks of explosion of the product in presence of static discharge: No.
Risks of explosion of the product in presence of mechanical impact:
No.

Fire Fighting Media and Instructions SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Protective Clothing (Fire) Be sure to use an approved/certified respirator or equivalent.

Special Remarks on Fire Hazards When heated to decomposition it emits very toxic fumes.

Special Remarks on Explosion Hazards Not available.

Section 6. Accidental Release Measures

Small Spill and Dilute with water and mop up, or absorb with an inert dry material and

Chloroform

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| Leak | place in an appropriate waste disposal container. |
| Large Spill and Leak | Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. |
| Spill Kit Information | No specific spill kit required for this product. |

Section 7. Handling and Storage

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| Handling | Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing vapors or spray mists. |
| Storage | Keep container tightly closed. Keep container in a cool, well-ventilated area. |

Section 8. Exposure Controls/Personal Protection

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| Engineering Controls | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location. |
|-----------------------------|---|

Personal Protection

Eyes Splash goggles.

Body Lab coat.

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

Hands Gloves.

Feet Not applicable.

Protective Clothing (Pictograms)

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|---|---|
| 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. |
|---|---|

Product Name Chloroform

Exposure Limits

TWA: 49 mg/m³ from ACGIH (United States, 1996).

TWA: 49 mg/m³ from ACGIH (United States, 1996).

Period: 8 hour(s).

TWA: 10 ppm from ACGIH (United States, 1996). Period: 8 hour(s).

STEL: 9.78 mg/m³ from NIOSH REL (United States, 1994). Period: 60 minute(s).

STEL: 2 ppm from NIOSH REL (United States, 1994).

Period: 60 minute(s).

TWA: 9.78 mg/m³ from OSHA (United States, 1989).

TWA: 9.78 mg/m³ from OSHA Final Rule (United States, 1989). Period: 8 hour(s).

TWA: 2 ppm from OSHA Final Rule (United States, 1989).

Chloroform

Period: 8 hour(s).

Section 9. Physical and Chemical Properties

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|--------------------------------------|--------------------------------------|
| Odor | Pleasant. Ethereal. |
| Color | Colorless. |
| Physical State and Appearance | Liquid. (Colorless.) |
| Molecular Weight | 119.37 g/mole |
| Molecular Formula | C-H-Cl ₃ |
| pH | Not available. |
| Boiling/Condensation Point | 60.55°C (141°F) |
| Melting/Freezing Point | -62.95°C (-81.3°F) |
| Critical Temperature | 263.3°C (505.9°F) |
| Specific Gravity | 1.49 (Water = 1) |
| Vapor Pressure | 22.3 kPa (167 mmHg) (@ 20°C) |
| Vapor Density | 4.1 (Air = 1) |
| Volatility | 100% (v/v). |
| Odor Threshold | 205 ppm |
| Evaporation Rate | 10.2 compared to (n-BUTYL ACETATE=1) |
| VOC | 100 (%) |
| LogKow | Not available. |
| Dispersion Properties | See solubility in water. |
| Solubility | Partially soluble in water. |

Section 10. Stability and Reactivity

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| Stability and Reactivity | The product is stable. |
| Conditions of Instability | Not available. |
| Incompatibility with Various Substances | Reactive with oxidizing agents, metals, alkalis. |
| Rem/Incompatibility | Not available. |
| Hazardous Decomposition Products | Phosgene Gas. carbon oxides (CO, CO ₂) |
| Hazardous Polymerization | Will not occur. |

Section 11. Toxicological Information

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| RTECS Number: | Chloroform | FS9100000 |
| Toxicity | Acute oral toxicity (LD50): 36 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 47702 mg/m ³ 4 hour(s) [Rat]. | |
| Chronic Effects on Humans | CARCINOGENIC EFFECTS: Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC, 3 (Possible for human.) by European Union. | |

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| Acute Effects on Humans | Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. May be hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation. Hazardous in case of ingestion. |
| Synergetic Products (Toxicologically) | Not available. |
| Irritancy | Draize Test (Rabbit): Eyes: 20 mg/24h. Reaction: Moderate. Draize Test (Rabbit) Skin: 500 mg/24h mild |
| Sensitization | Not available. |
| Carcinogenic Effects | Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC, 3 (Possible for human.) by European Union. |
| Toxicity to Reproductive System | orl-rat TDLo:4 gm/kg (6-15D preg) ; REPRODUCTIVE(Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus) |
| Teratogenic Effects | Tests on laboratory animals for teratogenic effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS). |
| Mutagenic Effects | Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS). |

Section 12. Ecological Information

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| Ecotoxicity | Not available. |
| BOD5 and COD | Not available. |
| Toxicity of the Products of Biodegradation | The products of degradation are as toxic as the product itself. |

Section 13. Disposal Considerations

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| EPA Waste Number | U044 D022 |
| Treatment | Specified Technology – Incineration or fuels blending to less than the TCLP standard. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations. |

Section 14. Transport Information

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| DOT Classification | Proper Shipping Name: CHLOROFORM Hazard Class: 6.1 UN number: UN1888 Packing Group: III RQ: 10 lbs. (4.536 kg) |
| TDG Classification | Not available. |
| IMO/IMDG Classification | Proper Shipping Name: CHLOROFORM Hazard Class: 6.1 UN number: UN1888 Packing Group: III RQ: 10 |

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ICAO/IATA Classification Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 8(b) inventory: Chloroform
TSCA 8(d) H and S data reporting: Chloroform: 1987
SARA 302/304/311/312 extremely hazardous substances: Chloroform
SARA 302/304 emergency planning and notification: Chloroform
SARA 302/304/311/312 hazardous chemicals: Chloroform
SARA 311/312 MSDS distribution – chemical inventory – hazard identification: Chloroform: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: Chloroform
Clean Water Act (CWA) 307: Chloroform
Clean Water Act (CWA) 311: Chloroform
Clean air act (CAA) 112 accidental release prevention: Chloroform
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: Chloroform

WHMIS (Canada) Class D–1A: Material causing immediate and serious toxic effects (VERY TOXIC). Class D–2A: Material causing other toxic effects (VERY TOXIC). Class D–2A: Material causing other toxic effects (VERY TOXIC).
CLASS D–2B: Material causing other toxic effects (TOXIC).
CEPA DSL: Chloroform
This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations

EINECS Chloroform 200–663–8

DSCL (EEC) R22– Harmful if swallowed.
R38– Irritating to skin.
R40– Possible risks of irreversible effects.
R48/20/22– Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

International Lists

Australia (NICNAS): Chloroform

Japan (MITI): Chloroform

Korea (TCCL): Chloroform

Philippines (RA6969): Chloroform
China: No products were found.

State Regulations Pennsylvania RTK: Chloroform: (special hazard, environmental hazard, generic environmental hazard)
Massachusetts RTK: Chloroform
New Jersey: Chloroform
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute:

Chloroform

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California prop. 65 (no significant risk level): Chloroform: 20 mg/day (value), 40 mg/day (inhalation)

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Chloroform

Section 16. Other Information

| | | |
|--|-------------------|--|
| National Fire Protection Association (U.S.A.) | 0 20 Health | Fire Hazard Reactivity Specific Hazard |
|--|-------------------|--|

Changed Since Last
Revision +

Notice to Reader

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