

SAFETY DATA SHEET

M47011 - ANSI - EN



CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| | |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company Identification: | Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151 |
| 24 Hour Emergency Telephone Number: | 1-800-733-3665 or 1-972-404-3228 (USA); CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186 |
| To Request an SDS: | MSDS@oxy.com or 1-972-404-3245 |
| Customer Service: | 1-800-752-5151 or 1-972-404-3700 |
| Product Identifier: | CHLOROFORM; CHLOROFORM TECHNICAL GRADE; CHLOROFORM FLUOROCARBON GRADE; CHLOROFORM ALCOHOL STABILIZED GRADE |
| Trade Name: | Chloroform; Chloroform Technical Grade; Chloroform Fluorocarbon Grade; Chloroform Alcohol Stabilized Grade |
| Synonyms: | METHYL TRICHLORIDE, FORMYL TRICHLORIDE, METHANE TRICHLORIDE, METHENYL TRICHLORIDE, TRICHLOROFORM, TRICHLOROMETHANE |
| Product Use: | Refrigerant, Dyes, Plastic and resin manufacturing |
| Uses Advised Against: | None identified. |
| Note: | The Alcohol Stabilized Grade contains small amounts of ethanol as a stabilizer. The Technical and Fluorocarbon Grades do not. |

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: Colorless
Appearance: Clear
Odor: Mildly sweet odor
Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: TOXIC IF INHALED. MAY CAUSE DROWSINESS OR DIZZINESS. HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. CAUSES EYE IRRITATION. SUSPECTED OF CAUSING CANCER. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO RESPIRATORY SYSTEM, KIDNEY, LIVER, CENTRAL NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE.

PRECAUTIONARY STATEMENTS: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, vapors, or spray. Use only outdoors or in a well-ventilated area. Use respiratory protection as required. Wear gloves, protective clothing, eye, and face protection. Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink or smoke when using this product.

GHS CLASSIFICATION:

| | |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| GHS: CONTACT HAZARD - SKIN: | Category 2 - Causes skin irritation. |
| GHS: CONTACT HAZARD - EYE: | Category 2B - Causes eye irritation |
| GHS: ACUTE TOXICITY - INHALATION: | Category 3 - Toxic if inhaled |
| GHS: ACUTE TOXICITY - ORAL: | Category 4 - Harmful if swallowed. |
| GHS: ACUTE TOXICITY - DERMAL: | No data available. Not classified. |
| GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE): | Category 3 - May cause drowsiness or dizziness |
| GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE): | Category 1 - Causes damage to Respiratory System, Kidney, Liver, Central Nervous System (CNS) through prolonged or repeated exposure |
| GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE): | Category 2 - May cause damage to kidney and liver through prolonged or repeated exposure |
| GHS: CARCINOGENICITY: | Category 2 - Suspected of causing cancer. |

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

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|-------------------------------------------------------------------------------------------|
| GHS: REPRODUCTION TOXIN: Category 2 - Suspected of damaging fertility or the unborn child |
|-------------------------------------------------------------------------------------------|

UNKNOWN ACUTE TOXICITY: Not applicable. This product was tested as a whole. This information only pertains to untested mixtures.

GHS SYMBOL: Health hazards, Skull and Crossbones, Exclamation mark



GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:**GHS - Health Hazard Statement(s)**

Toxic if inhaled
Harmful if swallowed
Causes skin irritation
Causes eye irritation
May cause drowsiness or dizziness
Suspected of causing cancer
May damage fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure : (Respiratory System, Kidneys, Liver, Central Nervous System)

GHS - Precautionary Statement(s) - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not breathe dust, fume, gas, mist, vapors, or spray
Use only outdoors or in a well-ventilated area
Wear protective gloves, protective clothing, eye, and face protection
Wash thoroughly after handling
Do not eat, drink or smoke when using this product

GHS - Precautionary Statement(s) - Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor/physician
Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
IF ON SKIN: Wash with plenty of water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
Specific treatment (see Section 4 of the safety data sheet and/or the First Aid information on the product label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing
If eye irritation persists: Get medical advice/attention
Call a POISON CENTER or doctor/physician if you feel unwell
IF exposed or concerned: Get medical advice/attention

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

GHS - Precautionary Statement(s) - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

GHS - Precautionary Statement(s) - Disposal

Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations.

Hazards Not Otherwise Classified (HNOC)

None identified

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: METHYL TRICHLORIDE, FORMYL TRICHLORIDE, METHANE TRICHLORIDE, METHENYL TRICHLORIDE, TRICHLOROFORM, TRICHLOROMETHANE

| Component | Percent [%] | CAS Number |
|-----------------------------------------------|-------------|------------|
| Chloroform | > 99 | 67-66-3 |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) | < 1 | 64-17-5 |

SECTION 4. FIRST AID MEASURES

INHALATION: If inhaled and adverse effects occur, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician. See Notes to Physician below and Section 11 for more information.

SKIN CONTACT: If on skin or hair, wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Treat any skin irritation symptomatically.

EYE CONTACT: If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

INGESTION: If swallowed, rinse mouth with water (only if the person is conscious). Contact a poison center or doctor/physician if you feel unwell.

Most Important Symptoms/Effects (Acute and Delayed) :

Acute Symptoms/Effects: Listed below.

Inhalation (Breathing): Respiratory System Effects: Inhalation of this material may cause acute respiratory depression with central nervous system (CNS) depression, resulting in lightheadedness to possibly rapid loss of consciousness. Moderate to severe exposures may cause cardiac arrhythmias.

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

Skin: Skin Irritation: Exposure to skin may cause redness, dryness, localized edema, ulcerations.

Eye: Eye Irritation. Eye exposure may cause irritation, tearing, conjunctivitis, corneal edema, cornea epithelial damage.

Ingestion (Swallowing): Gastrointestinal System Effects: May be fatal if swallowed.

Delayed Symptoms/Effects:

- Respiratory System Effects: Chemical pneumonitis and delayed pulmonary edema
- Skin: Repeated and prolonged skin contact may cause a chronic dermatitis
- May cause delayed hepatotoxicity
- Acute renal toxicity has been rarely reported
- Suspected of causing cancer
- Suspected of damaging fertility or the unborn child

Interaction with Other Chemicals Which Enhance Toxicity: Alcohol may enhance toxic effects. May potentiate other agents that cause central nervous system (CNS) and respiratory system depression, such as alcohol, opiates. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen. Catecholamines may potentiate arrhythmias.

Medical Conditions Aggravated by Exposure: May increase potential for cardiac arrhythmia. Persons with alcoholism, kidney disorders, liver disorders, or central nervous system disorders may be more susceptible to toxicity.

Protection of First-Aiders: Protect against vapor/gas exposure. Do not breathe gas, fumes, vapor, mist, or spray. Protect against liquid contamination/frostbite. Avoid contact with skin and eyes. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations.

Notes to Physician: For ingestion, nasogastric aspiration is recommended if volume ingested is of sufficient volume to aspirate. Protect the airway, onset of respiratory depression may be rapid. Consider EKG monitoring to detect cardiac arrhythmias. Monitor blood pressure for hypotension. Avoid catecholamines, especially in the presence of arrhythmias. For very high exposures, (intentional, solvent abuse), oxygen, advanced cardiac life support, intubation and volume support may be required. For skin exposures, wash the area with soap and water, and treat any irritation symptomatically. Thorough decontamination of the eye is important. See section 11 for additional toxicology information.

SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: Negligible fire hazard.

Extinguishing Media: Use media appropriate for surrounding fire.

Fire Fighting: Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Keep water runoff out of water supplies and sewers (see Section 6 of the MSDS).

| Component | Immediately Dangerous to Life/ Health (IDLH) |
|-----------------------|----------------------------------------------|
| Chloroform 67-66-3 | 500 ppm IDLH |

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

| | |
|----------------------------------------------------------|---------------|
| Ethyl Alcohol (Alcohol Stabilized Grade Only) 64-17-5 | 3300 ppm IDLH |
|----------------------------------------------------------|---------------|

Hazardous Combustion Products: Thermal decomposition or combustion products: hydrogen chloride, chlorine, phosgene, oxides of carbon

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not flammable

Upper Flammability Level (air): Not flammable

Flash point: None

Auto-ignition Temperature: >1832 °F (>1000 °C)

SECTION 6. ACCIDENTAL RELEASE MEASURES**Personal Precautions:**

Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Evacuation of surrounding area may be necessary for large spills. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Ventilate closed spaces before entering. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Methods and Materials for Containment and Cleaning Up:

Stop leak if possible without personal risk. Shut off ventilation system if needed. Ventilate closed spaces before entering. Completely contain spilled materials with dikes, sandbags, etc. Remove contaminated soil or collect with appropriate absorbent and place into suitable container. Keep container tightly closed. Liquid material may be removed with a properly rated vacuum truck. Dispose of in accordance with all applicable regulations. See Section 13, Disposal considerations, for additional information.

Environmental Precautions:

Avoid discharge into drains, surface water or groundwater. Keep out of water supplies, sewers and soil. Releases should be reported, if required, to appropriate agencies.

SECTION 7. HANDLING AND STORAGE**Precautions for Safe Handling:**

Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Avoid breathing vapor or mist. Avoid contact with skin, eyes and clothing. Do not taste or swallow. Wash thoroughly after handling. When using, do not eat, drink or smoke.

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

Safe Storage Conditions:

Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Store in a cool, dry area. Store in a well-ventilated area. Prevent water or moist air from entering storage tanks or containers. Do not enter confined spaces without following proper confined space entry procedures. Do not store in aluminum container or use aluminum fittings or transfer lines. Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws. Do not use cutting or welding torches, open flames or electric arcs on empty or full containers. Keep separated from incompatible substances (see Section 10 of SDS).

Incompatibilities/ Materials to Avoid:

bases, reactive metals, metallic fines or powders, oxidizing materials, halogens, acetone, aluminum, disilane, magnesium, potassium, sodium

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): Listed below for the product components that have regulatory occupational exposure limits (OEL's).

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

- *The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).*

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Additional Advice: SEE SECTION 11 FOR ADDITIONAL TOXICOLOGICAL INFORMATION.

ENGINEERING CONTROLS: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing to prevent skin contact. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

Protective Material Types: Viton®, Polyvinyl alcohol (PVA), Polyethylene (PE)

Respiratory Protection: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator is required. A NIOSH approved self-contained positive pressure breathing apparatus with full-face piece or airline respirator is required for spills, emergencies and/or IDLH concentrations. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

| Component | Immediately Dangerous to Life/ Health (IDLH) |
|----------------------------------------------------------|----------------------------------------------|
| Chloroform 67-66-3 | 500 ppm IDLH |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) 64-17-5 | 3300 ppm IDLH |

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-----------------------------------------------------|-------------------------------------|
| Appearance: | Clear |
| Color: | Colorless |
| Odor: | Mildly sweet odor |
| Odor Threshold [ppm]: | 200 ppm (causes olfactory fatigue). |
| Molecular Weight: | 119.37 |
| Molecular Formula: | CHCl ₃ |
| Decomposition Temperature: | No data available |
| Boiling Point/Range: | 142 ° F (61.1 ° C) |
| Freezing Point/Range: | -83 ° F (-63.9 ° C). |
| Vapor Pressure: | 160 mmHg @ 20° C |
| Vapor Density (air=1): | 4.1 |
| Relative Density/Specific Gravity (water=1): | 1.4 @ 25 ° C |
| Density: | No data available |
| Water Solubility: | 0.8% @ 25 ° C |
| pH: | Not applicable |
| Volatility: | 100% |
| Evaporation Rate (ether=1): | 0.56 |
| Partition Coefficient (n-octanol/water): | log Kow = 1.97 |
| Flash point: | None |
| Flammability (solid, gas): | Not flammable |
| Lower Flammability Level (air): | Not flammable |
| Upper Flammability Level (air): | Not flammable |
| Auto-ignition Temperature: | >1832 °F (>1000 °C) |
| Viscosity: | No data available |

SECTION 10. STABILITY AND REACTIVITY

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

Reactivity: Not reactive under normal temperatures and pressures.**Chemical Stability:** Stable at normal temperatures and pressures.**Possibility of Hazardous Reactions:**

Keep away from heat. Containers may rupture or explode if exposed to heat. Will attack some forms of plastics, rubber, and coatings. Avoid contact with incompatible substances and conditions due to generation of phosgene and other toxic and irritating substances.

Conditions to Avoid:

(e.g., static discharge, shock, or vibration) -. None known.

Incompatibilities/ Materials to Avoid:

bases, reactive metals, metallic fines or powders, oxidizing materials, halogens, acetone, aluminum, disilane, magnesium, potassium, sodium.

Hazardous Decomposition Products: Thermal decomposition or combustion products: hydrogen chloride, chlorine, phosgene, oxides of carbon

Hazardous Polymerization: Will not occur.**SECTION 11. TOXICOLOGICAL INFORMATION**

IRRITATION DATA: 10 mg/24 hour(s) open skin-rabbit mild; 500 mg/24 hour(s) skin-rabbit mild; 148 mg eyes-rabbit; 20 mg/24 hour(s) eyes-rabbit moderate

TOXICITY DATA:**PRODUCT TOXICITY DATA: CHLOROFORM**

| | | |
|---------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------|
| LD50 Oral: 908-1336 mg/kg oral-rat LD50 | LD50 Dermal: > 20 gm/kg skin-rabbit LD50 | LC50 Inhalation: 8000-9770 mg/m ³ (4 hr - Rat) |
|---------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------|

COMPONENT TOXICITY DATA:

Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

| Component | LD50 Oral: | LD50 Dermal: | LC50 Inhalation: |
|-------------------------------------------------------------|------------------|------------------|------------------------------------|
| Chloroform 67-66-3 | 450 mg/kg (Rat) | 20 g/kg (Rabbit) | 47702 mg/m ³ (4 hr-Rat) |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) 64-17-5 | 7060 mg/kg (Rat) | ----- | 124.7 mg/L (4 hr-Rat) |

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

POTENTIAL HEALTH EFFECTS:

- Eye contact:** Eye contact may cause irritation, conjunctivitis, tearing, swelling, eye pain, corneal edema, blurred vision, cornea epithelial damage.
- Skin contact:** Skin contact may cause irritation, redness, dryness, localized edema, ulcerations after significant long-term exposure.
- Inhalation:** Not a pulmonary irritant. May cause respiratory depression. May cause slightly sweet odor on breath. May cause central nervous system (CNS) depression resulting in lightheadedness to rapid loss of consciousness. Moderate to severe exposures may cause cardiac arrhythmias.
- Ingestion:** May cause gastrointestinal effects, liver damage, kidney damage, unconsciousness and death.
- Chronic Effects:** Increased irritability and decreased concentration was reported in female workers exposed to levels of 77 ppm or greater in the workplace. Deliberate abuse has been associated with depression, hallucinations, delirium and degenerative changes in central and peripheral nervous system tissues. May be excreted in breast milk. Repeated exposure has been associated with liver and kidney damage in humans and animals. In addition, nasal cavity changes were observed in rats and mice exposed for 7 days. Long-term ingestion may cause liver damage, reproductive effects and cancer. Interstitial pneumonitis was observed in male rats and in rabbits exposed to this material for six months. This effect was not observed in other species.

SIGNS AND SYMPTOMS OF EXPOSURE:

Listed below.

Inhalation (Breathing): Respiratory System Effects: Inhalation of this material may cause acute respiratory depression with central nervous system (CNS) depression, resulting in lightheadedness to possibly rapid loss of consciousness. Moderate to severe exposures may cause cardiac arrhythmias.

Skin: Skin Irritation: Exposure to skin may cause redness, dryness, localized edema, ulcerations.

Eye: Eye Irritation. Eye exposure may cause irritation, tearing, conjunctivitis, corneal edema, cornea epithelial damage.

Ingestion (Swallowing): Gastrointestinal System Effects: May be fatal if swallowed.

TOXICITY:

Chloroform was used as an anesthetic for humans (10,000 - 22,500 ppm), but is no longer recommended for this use due to liver and kidney damage. Intentional abuse can result in significant toxicity. Respiratory depression, with central nervous system depression and delayed hepatotoxicity are indicative of chloroform poisoning. Symptoms of central nervous system depression have been reported in workers at concentrations of 80-240 ppm. Dizziness, vertigo, fatigue, and headache have been reported from exposure to 920 ppm for approximately 3 minutes. Exposure to levels of 1500-2000 ppm have been reported to cause slight anesthesia. Irregular heartbeat may occur from exposure to levels of 8000 ppm or higher. This material is likely to be fatal after 5-10 minutes of 25,00 ppm.

Interaction with Other Chemicals Which Enhance Toxicity: Alcohol may enhance toxic effects. May potentiate other agents that cause central nervous system (CNS) and respiratory system depression, such as alcohol, opiates. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen. Catecholamines may potentiate arrhythmias.

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed.

GHS: ACUTE TOXICITY - DERMAL: No data available. Not classified.

GHS: ACUTE TOXICITY - INHALATION: Category 3 - Toxic if inhaled.

GHS: CONTACT HAZARD - EYE: Category 2B - Causes eye irritation

GHS: CONTACT HAZARD - SKIN: Category 2 - Causes skin irritation

Skin Absorbent / Dermal Route? No.

GHS: CARCINOGENICITY:
Category 2 - Suspected of causing cancer.

| Component | NTP: | IARC (GROUP 1): | IARC (GROUP 2): | OSHA: |
|-----------------------------------------------|-------------------------------------------------|-----------------|-----------------|--------|
| Chloroform | Reasonably Anticipated To Be A Human Carcinogen | Not listed | Group 2 | Listed |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) | Known Human Carcinogen | Group 1 | Not listed | Listed |

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 3 - Narcotic Effects

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Category 1 - Liver, Kidneys, Central Nervous System (CNS)

MUTAGENIC DATA:
Not classified as a mutagen per GHS criteria. This material has tested positive in one or more in vitro mutagenicity studies. However, the majority genotoxicity data have demonstrated a pattern of negative results.

REPRODUCTIVE TOXICITY:
Category 2 - Suspected of damaging fertility or the unborn child.

DEVELOPMENTAL TOXICITY:
Category 2 - Suspected of damaging fertility or the unborn child. This material may cause harm to the human fetus based on tests with laboratory animals. Studies of workers have not shown any association between exposure and adverse effects on reproduction or pregnancy outcome. This material crosses the placenta rapidly and enters fetal circulation. Developmental studies in experimental animals have produced a variety of results, some indicating fetotoxicity and weak teratogenicity. Animal studies indicate that inhalation exposure may cause reproductive effects in rodents.

SECTION 12. ECOLOGICAL INFORMATION

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

ECOTOXICITY DATA:

Fish Toxicity:

43.8 mg/L 96 hour(s) (static) LC50 Rainbow trout; 100 mg/L 96 hour(s) (static) LC50 Bluegill Sunfish

Invertebrate Toxicity:

28.9 mg/L 96 hour(s) (static) LC50 Daphnia Magma

FATE AND TRANSPORT:

BIODEGRADATION: Slow but substantial biodegradation apparently can occur when the proper microbial populations exist and are acclimated to the chemical**PERSISTENCE:** AIR: This material released to the atmosphere will degrade by reaction with hydroxyl radicals with a half-life of 151 days. SOIL: On land is expected to evaporate rapidly into the atmosphere due to its high vapor pressure. It is poorly adsorbed to soil and can leach into the groundwater. WATER: Primary loss will be by evaporation into the atmosphere. Laboratory experiments have measured the half-life for evaporation to be several hours to days. This material has a negligible rate of hydrolysis**BIOCONCENTRATION:** Bioconcentration potential in aquatic organisms is low with BCF of 2.9-10.35.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:

Reuse or reprocess, if possible. Keep out of water supplies, sewers and soil. Dispose in accordance with all applicable regulations.

Container Management:Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

| | |
|--------------------------------|------------|
| UN NUMBER: | UN1888 |
| PROPER SHIPPING NAME: | Chloroform |
| HAZARD CLASS/ DIVISION: | 6.1 |
| PACKING GROUP: | III |
| LABELING REQUIREMENTS: | 6.1 |

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

RQ (lbs): RQ 10 Lbs. (Chloroform)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1888
SHIPPING NAME: Chloroform
CLASS OR DIVISION: 6.1
PACKING/RISK GROUP: III
LABELING REQUIREMENTS: 6.1

MARITIME TRANSPORT (IMO / IMDG) :

UN NUMBER: UN1888
PROPER SHIPPING NAME: Chloroform
HAZARD CLASS / DIVISION: 6.1
Packing Group: III
LABELING REQUIREMENTS: 6.1

SECTION 15. REGULATORY INFORMATION**U.S. REGULATIONS****OSHA REGULATORY STATUS:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

| Component | CERCLA Reportable Quantities: |
|------------|-------------------------------|
| Chloroform | 10 lb (final RQ) |

SARA EHS Chemical (40 CFR 355.30)

If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

| Component | EPCRA RQs | Section 302 Threshold Planning Quantity (TPQs) |
|------------|------------------|------------------------------------------------|
| Chloroform | 10 lb (EPCRA RQ) | 10000 lb TPQ |

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Acute Health Hazard, Chronic Health Hazard, Extremely Hazardous

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

EPCRA SECTION 313 (40 CFR 372.65):

The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

| Component | Status: |
|------------|---------|
| Chloroform | Listed |

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

Not regulated

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS**California Proposition 65:**

This product contains a chemical known to the State of California to cause cancer, and/or birth defects, and/or other reproductive harm.

| Component | California Proposition 65 Cancer WARNING: | California Proposition 65 CRT List - Male reproductive toxin: | California Proposition 65 CRT List - Female reproductive toxin: | Massachusetts Right to Know Hazardous Substance List | New Jersey Right to Know Hazardous Substance List | New Jersey Special Health Hazards Substance List |
|-------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| Chloroform 67-66-3 | Listed developmental toxicity | Not Listed | Not Listed | Listed | 0388 | carcinogen |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) 64-17-5 | Listed developmental toxicity | Not Listed | Not Listed | Listed | 0844 | Not Listed |

| Component | New Jersey - Environmental Hazardous Substance List | Pennsylvania Right to Know Hazardous Substance List | Pennsylvania Right to Know Special Hazardous Substances | Pennsylvania Right to Know Environmental Hazard List | Rhode Island Right to Know Hazardous Substance List |
|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|
| Chloroform 67-66-3 | Listed | Listed | Present | Present | Listed |
| Ethyl Alcohol (Alcohol Stabilized Grade Only) 64-17-5 | Not Listed | Listed | Not Listed | Not Listed | Not Listed |

CANADIAN REGULATIONS

• This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations

CHLOROFORM (ALL GRADES)

SDS No.: M47011

SDS Revision Date: 15-Oct-2015

WHMIS - Classifications of Substances:

- D1A - Poisonous and Infectious Material; Materials causing immediate and serious toxic effects - Very toxic material
- D2A - Poisonous and Infectious Material; Materials causing other toxic effects - Very toxic material
- D2B - Poisonous and Infectious Material; Materials causing other toxic effects - Toxic material

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 15-Oct-2015

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 2*

Flammability Rating: 0

Reactivity Rating: 0

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)

Health Rating: 2

Flammability: 0

Reactivity Rating: 0

Reason for Revision:

- Product Identifier has been added or updated: SEE SECTION 1
- Product Name and/or Trade Name(s) has been revised: SEE SECTION 1

IMPORTANT:

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet