SAFETY DATA SHEET

M47013 - ANSI - EN

CARBON TETRACHLORIDE, TECHNICAL GRADE

SDS No.: M47013 **SDS Revision Date:** 30-Mar-2015

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:	**CARBON TETRACHLORIDE, TECHNICAL GRADE**
Synonyms:	CARBON TET, Tetrachloromethane, PERCHLOROMETHANE, METHANE TETRACHLORIDE
Product Use:	Refrigerant manufacturing, Lab reagent, Incineration test agent
Uses Advised Against:	None identified.
Chemical Family:	Aliphatic halogenated solvent

2. HAZARDS IDENTIFICATION

CARBON TETRACHLORIDE, TECHNICAL GRADE

SDS No.: M47013 **SDS Revision Date:** 30-Mar-2015

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

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EMERGENCY OVERVIEW:

Color: Colorless
Physical state Liquid
Appearance: Clear
Odor: Mildly sweet odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. MAY BE HARMFUL IF SWALLOWED. HARMFUL IF INHALED. MAY CAUSE DROWSINESS OR DIZZINESS. MAY BE ABSORBED THROUGH THE SKIN. CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE IRRITATION. CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM (CNS), LIVER, KIDNEY. CAUSES DAMAGE TO LIVER, HEMATOLOGIC SYSTEM (BLOOD), RESPIRATORY SYSTEM, RENAL SYSTEM (KIDNEY) THROUGH PROLONGED OR REPEATED EXPOSURES. SUSPECTED OF CAUSING CANCER. SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD. ALCOHOL CONSUMPTION MAY INCREASE TOXIC EFFECTS.

AQUATIC TOXICITY: HARMFUL TO AQUATIC LIFE. Marine Pollutant.

PRECAUTIONARY STATEMENTS: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Do not breathe gas, fumes, vapor, mist, or spray. Use personal protective equipment as required. Wear gloves, protective clothing, eye, and face protection. Use respiratory protection as required. Do not eat, drink or smoke when using this product. Wash skin and contaminated clothing thoroughly after handling. Avoid release to the environment. Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable federal, state, and local health and environmental regulations.

ADDITIONAL HAZARD INFORMATION: Warning: Contains Carbon Tetrachloride, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

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GHS CLASSIFICATION:

GHS: CONTACT HAZARD - SKIN:	Category 2 - Causes skin irritation.
GHS: CONTACT HAZARD - EYE:	Category 2A - Causes serious eye irritation
GHS: ACUTE TOXICITY - INHALATION:	Category 4 - Harmful if inhaled
GHS: ACUTE TOXICITY - ORAL:	Not classified as acutely toxic by oral exposure per OSHA-GHS criteria.
GHS: ACUTE TOXICITY - DERMAL:	Not classified as acutely toxic by dermal exposure per OSHA-GHS criteria.
GHS: ASPIRATION HAZARD:	Category 1 - May be fatal if swallowed and enters airways
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 1 - Causes damage to central nervous system (CNS), liver, kidney

CARBON TETRACHLORIDE, TECHNICAL GRADE

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause drowsiness or dizziness
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to liver, blood, kidney, respiratory system through prolonged or repeated exposure
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to 1 (Liver, Blood, Kidney, Respiratory System) through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Category 2 - Suspected of causing cancer.
GHS: REPRODUCTION TOXIN:	Category 2 - Suspected of damaging fertility or the unborn child
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 3 - Harmful to aquatic life
GHS: HAZARDOUS TO THE OZONE LAYER:	Category 1 - Harms the public health and the environment by destroying ozone in the upper atmosphere

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

GHS SYMBOL:
Health hazards, Exclamation mark

GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Health Hazard Statement(s)
Harmful if inhaled
May cause drowsiness or dizziness
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
Causes damage to organs: (Central Nervous System(CNS), Liver, Kidney)
Causes damage to organs through prolonged or repeated exposure: (Liver, Hematologic System (Blood), Kidney, Respiratory System)

GHS - Precautionary Statement(s) - Prevention
Wash thoroughly after handling
Wear eye protection, face protection, protective gloves
Use only outdoors or in a well-ventilated area
Do not breathe gas, fumes, vapor, mist, or spray
Do not eat, drink or smoke when using this product
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid release to the environment

GHS - Precautionary Statement(s) - Response
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
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
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 First Aid information on product label and/or Section 4 of the SDS)
IF exposed or concerned, or if you feel unwell: Get medical advice/attention

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)
This material may be readily absorbed through the skin
Alcohol consumption may increase toxic effects

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: CARBON TET, Tetrachloromethane, PERCHLOROMETHANE, METHANE TETRACHLORIDE

Component	Percent [%]	CAS Number
Carbon Tetrachloride	99.5 - 100	56-23-5

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 if you feel unwell.

SKIN CONTACT: If on skin, wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before reuse. See Notes to Physician below and Section 11 for more information.

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 attention.

INGESTION: If swallowed, immediately contact a poison center or doctor/physician. Do NOT induce vomiting.

Most Important Symptoms/Effects (Acute and Delayed) :.

Acute Symptoms/Effects: The principal clinical syndromes are the same regardless of exposure route and are dose dependent: Central Nervous System (CNS) depression, Gastrointestinal (GI) irritation, cardiovascular disturbances, severe liver and kidney injury.
Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. May irritate upper airways. Pulmonary edema and liver and kidney injury can be delayed by days.
Skin: Skin Irritation. Skin exposure may cause burning and prickling sensations, itching, irritation, red skin, edema, small peripheral blisters.
Eye: Eye Irritation. Eye exposure may cause irritation, tearing, pain, conjunctivitis, clouding of cornea.
Ingestion (Swallowing): Ingesting this material may cause gastrointestinal irritation, central nervous system (CNS) depression, CNS symptoms such as sedation, headache, tremor, vision disturbances, memory problems, nausea, vomiting, headache, breathing difficulty, reduced blood pressure, tachycardia, oliguria or anuria, severe liver injury (See Section 11). Ingestion may cause unconsciousness and death.

Delayed Symptoms/Effects:
- Delayed pulmonary edema has been reported as long as 8 days after the initial intoxication associated with renal failure
- Reduced renal output (oliguria)
- Renal (kidney) failure
- Elevation of liver enzymes
- Liver failure
- May cause chronic dermatitis - rough, dry, red skin due to extraction of fatty materials
- May cause eye damage such as corneal damage, decreased vision

Interaction with Other Chemicals Which Enhance Toxicity: General and liver toxicity is significantly increased by alcohols, ketones and other chemicals that use the same metabolic pathways: acetaminophen, phenobarbital, methamphetamine, barbiturates, brominated or chlorinated solvents, DDT, PBB, chlordecone, nicotine, carbon disulfide, or other alkyl disulfides. Hypoxia may also increase sensitivity to toxicity. May potentiate other agents that cause Central Nervous System (CNS) depression and respiratory system depression. Catecholamine administration MAY pose increased risk of cardiac arrhythmias.

Medical Conditions Aggravated by Exposure: May increase potential for cardiac arrhythmia. Liver disorders, kidney disorders, respiratory system disorders.

Protection of First-Aiders: Protect against vapor/gas exposure. Protect against liquid contamination. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Consider the possibility of high levels of gas in confined/unventilated spaces or low-lying areas.

Notes to Physician: There is no antidote for carbon tetrachloride poisoning. Treatment consists of support of respiratory, cardiovascular, hepatic, and renal functions. Catecholamine administration after exposure to this compound MAY pose enhanced risk of cardiac arrhythmia. This material is an aspiration hazard. For ingestion, nasogastric aspiration is recommended if volume ingested is of sufficient volume to aspirate. Protect the airway. Epinephrine and other sympatomimetic amines may initiate cardiac arrhythmias in individuals exposed and experiencing symptoms from this material. This compound is absorbed rapidly by oral administration and causes similar effects to inhalation exposure. Activated charcoal may be administered. Liver, kidney, and pulmonary injury may be delayed several days after exposure. May cross the placenta, and may be excreted in breast milk.

5. FIRE-FIGHTING MEASURES

Fire Hazard: Negligible fire hazard.

Extinguishing Media: Use extinguishing agents 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.

Component	Immediately Dangerous to Life/ Health (IDLH)
Carbon Tetrachloride 56-23-5	200 ppm IDLH

Hazardous 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 applicable

Upper Flammability Level (air): Not applicable

Flash point: None

Auto-ignition Temperature: None

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Do not breathe vapors, mist, or spray. Ventilate confined spaces before entering. Exposure in an enclosed or poorly-ventilated area may be very harmful. Keep unnecessary people away, isolate hazard area and deny entry. Evacuation of surrounding area may be necessary for large spills. Shut off ventilation system if needed. Do not get in eyes, on skin or on clothing. Wear appropriate personal protective equipment recommended in Section 8 of the SDS.

Methods and Materials for Containment and Cleaning Up:
Stop leak if possible without personal risk. Ventilate closed spaces before entering. Completely contain spilled materials with dikes, sandbags, etc. Collect with appropriate absorbent and place into suitable container. Keep container tightly closed and properly labeled. Liquid material may be removed with a properly rated vacuum truck. Properly dispose of in accordance with all applicable regulations. See Section 13, Disposal considerations, for additional information.

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

7. HANDLING AND STORAGE

Precautions for Safe Handling:
Use personal protective equipment as required. Do not breathe gas, vapors, or spray mist. Avoid contact with skin, eyes and clothing. Do not taste or swallow. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. When using, do not eat, drink or smoke. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. 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. Protect from physical damage.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. Keep container properly labeled and tightly closed. Do not store in aluminum container or use aluminum fittings or transfer lines. Store in a cool, dry area. Protect from sunlight. Prevent water or moist air from entering storage tanks or containers. Store in a well-ventilated area. Do not enter confined spaces without following proper confined space entry procedures. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Incompatibilities/ Materials to Avoid:
Bases, Oxygen, Peroxides, Alkali metals, Reactive metals, Aluminum, Sodium, Potassium, Oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CARBON TETRACHLORIDE, TECHNICAL GRADE

SDS No.: M47013 **SDS Revision Date:** 30-Mar-2015

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

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PELCeiling
Carbon Tetrachloride 56-23-5	10 ppm	-----	25 ppm

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 advisory (non-regulatory) occupational exposure limits (OEL's) established.

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Carbon Tetrachloride	56-23-5	5 ppm	10 ppm	-----	2 ppm 12.6 mg/m^3	-----	-----

- 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.

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. Contaminated clothing should be removed, then discarded or laundered.

Hand Protection: Wear appropriate chemical resistant gloves. This material may be readily absorbed through the skin.

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

Respiratory Protection: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator is required. The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA:. At Any Detectable Concentration - Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Escape - Any air-purifying respirator with a full facepiece and an organic vapor canister. Any appropriate escape-type, self-contained breathing apparatus. For Unknown Concentrations or Immediately Dangerous to Life or Health - Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece. 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)
Carbon Tetrachloride 56-23-5	200 ppm IDLH

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Appearance:	Clear
Color:	Colorless
Odor:	Mildly sweet odor
Odor Threshold [ppm]:	50 ppm.
Molecular Weight:	153.81
Molecular Formula:	C-Cl4
Chemical Family:	Aliphatic halogenated solvent
Boiling Point/Range:	170 °F (76.7 °C)
Freezing Point/Range:	-9 °F (-23 °C).
Melting Point/Range:	Not applicable to liquids
Vapor Pressure:	91 mm Hg @ 20 °C
Vapor Density (air=1):	5.32
Relative Density/Specific Gravity (water=1):	1.59 @ 25/25 °C
Water Solubility:	0.08% @ 25 °C
pH:	No data available
Volatility:	100%
Evaporation Rate (ether=1):	0.3
Partition Coefficient (n-octanol/water):	2.83
Flash point:	None
Flammability (solid, gas):	Not applicable
Lower Flammability Level (air):	Not applicable
Upper Flammability Level (air):	Not applicable
Auto-ignition Temperature:	None
Viscosity:	No data available

10. STABILITY AND REACTIVITY

Reactivity: Not reactive under normal temperatures and pressures. May react explosively with alkali metals.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions:
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. 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. Oxygen. Peroxides. Alkali metals. Reactive metals. Aluminum. Sodium. Potassium. Oxidizing agents.

Hazardous Decomposition Products: hydrogen chloride, chlorine, phosgene, oxides of carbon

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

IRRITATION DATA: 4 mg skin-rabbit mild; 500 mg/24 hour(s) skin-rabbit mild; 2.2 mg/30 second(s) eyes-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild

TOXICITY DATA:

PRODUCT TOXICITY DATA: Carbon Tetrachloride, Technical Grade

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
2350 mg/kg oral-rat LD50	>15 gm/kg skin-rabbit LD50	8000 ppm (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:
Carbon Tetrachloride 56-23-5	2350 mg/kg (Rat)	5070 mg/kg (Rat)	8000 ppm (4 hr-Rat)

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POTENTIAL HEALTH EFFECTS:

Eye contact: Vapors may cause mild eye irritation with tearing, redness, or a stinging or burning feeling. Liquids or mist cause severe irritation with redness and pain.

Skin contact:	May cause skin irritation with redness, an itching or burning feeling, and swelling of the skin. May be absorbed through the skin to cause effects as detailed in inhalation.
Inhalation:	May cause respiratory tract irritation. Breathing this material is harmful, and may cause death depending upon level and duration of exposure. Breathing excessivlely high concentrations of this material can have a direct sensitizing effect on the heart which may lead to irregular heartbeats that may cause death. Exposure leads to rapid depression of the central nervous system. Alcohol consumption increases the toxic effects.
Ingestion:	May be harmful if swallowed. Lung aspiration hazard if swallowed. Lung aspiration may result in chemical pneumonitis, pulmonary edema, and damage to lung tissue or death.
Chronic Effects:	Chronic overexposure is known to cause liver and kidney damage in animals and humans. Toxic amounts may be absorbed through the skin to cause chronic health effects. As in acute exposures, drinking alcohol may increase the potential for toxic effects. Persons suffering from malnutrition also might be more sensitive. Repeated or prolonged contact may result irritation and dermatitis due to the defatting action on the skin. Effects on vision have been observed in some cases. May cause cancer based on animal data. In animal studies, blood disorders and male reproductive effects have been observed. The relevance of these observations to humans is not clear at this time. Sufficient evidence in animals of fetal toxicity at maternally toxic doses.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. May irritate upper airways. Pulmonary edema and liver and kidney injury can be delayed by days.

Skin: Skin Irritation. Skin exposure may cause burning and prickling sensations, itching, irritation, red skin, edema, small peripheral blisters.

Eye: Eye Irritation. Eye exposure may cause irritation, tearing, pain, conjunctivitis, clouding of cornea.

Ingestion (Swallowing): Ingesting this material may cause gastrointestinal irritation, central nervous system (CNS) depression, CNS symptoms such as sedation, headache, tremor, vision disturbances, memory problems, nausea, vomiting, headache, breathing difficulty, reduced blood pressure, tachycardia, oliguria or anuria, severe liver injury (See Section 11). Ingestion may cause unconsciousness and death.

ACUTE TOXICITY:

The liver and kidney are the primary sites of induced toxicity. No adverse effects are expected at 10 ppm based on both animal and human data. Exposures of >33 ppm have caused symptoms of central nervous system depression in humans and animals as well as symptoms of liver dysfunction. Alcoholics are particularly susceptible. In one case involving inhalation of carbon tetrachloride by an alcoholic, the lethal exposure level was estimated at 250 ppm for 15 minutes. Nonalcoholic workers were exposed at the same level for 4 hours with no significant clinical signs other than slight headache. Swallowing small amounts of this material (1-10 mL) is harmful and may cause death.

CHRONIC TOXICITY:
In animals, subchronic/chronic exposure by various routes also results in damage to respiratory, cardiac, neural and reproductive/fetal tissues and in reduced body weight, although generally at doses greater or equal to those producing hepatic effects. Limited evidence of immune system effects in animals has been reported.

Interaction with Other Chemicals Which Enhance Toxicity: General and liver toxicity is significantly increased by alcohols, ketones and other chemicals that use the same metabolic pathways: acetaminophen, phenobarbital, methamphetamine, barbiturates, brominated or chlorinated solvents, DDT, PBB, chlordecone, nicotine, carbon disulfide, or other alkyl disulfides. Hypoxia may also increase sensitivity to toxicity. May potentiate other agents that cause Central Nervous System (CNS) depression and respiratory system depression. Catecholamine administration MAY pose increased risk of cardiac arrhythmias.

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GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - ORAL: Not classified as acutely toxic by oral exposure per OSHA-GHS criteria.

GHS: ACUTE TOXICITY - DERMAL: Not classified as acutely toxic by dermal exposure per OSHA-GHS criteria.

GHS: ACUTE TOXICITY - INHALATION: Category 4 - Harmful if inhaled.

Skin Absorbent / Dermal Route? Yes.

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

GHS: CONTACT HAZARD - EYE: Category 2A - Causes serious eye irritation

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

Component	NTP:	IARC (GROUP 1):	IARC (GROUP 2):	OSHA:
Carbon Tetrachloride	Reasonably Anticipated To Be A Human Carcinogen	Not listed	Group 2	Listed

MUTAGENIC DATA:
In rats, moderate to marked degeneration of testicular germinal epithelium and reduced fertility were seen after inhalation of 200 ppm or higher for up to 192 days. Studies indicate that this material is not genotoxic.

REPRODUCTIVE TOXICITY:
Reproductive effects have been reported in animals. In rats, inhalation exposure during gestation caused maternal weight loss and clear maternal hepatotoxicity, but no effect on conception, number of implants, or number of resorptions. There were no gross anomalies, although fetal size was somewhat decreased. The authors concluded that this response was not treatment related. This material has been reported to prolong the estrus cycle and to cause testicular atrophy and to decrease sperm counts in rats, although oral exposure did not adversely affect reproduction. Ovary changes were observed in female mice that were exposed to vapor for 6 hours/day, 5 days/week for 2 years. In addition, absolute and relative testicular weights were elevated in the male mice. Rats exposed twice weekly for 5 weeks to anesthetizing concentrations exhibited only a small decrease in testes weight. Administration during gestation produced marked maternal toxicity and total resorption of fetuses in some animals, but no teratogenicity or other adverse effects on survivors. Oral administration to animals produced liver tumors, including hepatocellular carcinomas, in various strains of mice; and in rats caused benign and malignant liver tumors. Administration to mice resulted in a statistically significant increase in the incidence of neoplastic tumors of the skin.

DEVELOPMENTAL TOXICITY:
Limited data suggest there is a low potential for developmental toxicity in animals.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Fish Toxicity:
43100 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)
27-125 mg/L 96 hour(s) LC50 (static) Bluegill Sunfish; 150 mg/L 96 hour(s) LC50 (static) Tidewater silverside; 41 mg/l LD50 (flow through) Fathead minnow

Invertebrate Toxicity:
1500 ug/L 7 hour(s) EC50 (Regeneration) Flatworm (Dugesia japonica)

Algae Toxicity:
>136000 ug/L NR hour(s) EC10 (Population Growth) Green algae (Haematococcus pluvialis)

Other Toxicity:
900 ug/L 8 hour(s) EC50 (Teratogenesis) Leopard frog (Rana pipiens)

FATE AND TRANSPORT:

BIODEGRADATION: Biodegradation may occur in groundwater, but will be very slow compared with evaporation.

PERSISTENCE: AIR: This material is stable in the troposphere with residence time of 30-50 years. It is subject to photolysis in the stratosphere. SOIL: This material is expected to have high mobility in soil based upon a Koc of 71. WATER: Primary loss will be by evaporation into the atmosphere. This material is not expected to adsorb to suspended solids and sediment in water. This material has a negligible rate of hydrolysis. Henry's Law constant is 2.76x10-2 atm-cu m/mole.

BIOCONCENTRATION: 30 ug/L 1-21 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 52.3 ug/L. This material is not expected to bioconcentrate, with an estimated bioconcentration factor of 3.2-7.4.

13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations.

Container Management:
Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Refer to manufacturer/supplier for information on recovery/recycling. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER:	UN1846
PROPER SHIPPING NAME:	Carbon tetrachloride
HAZARD CLASS/ DIVISION:	6.1
PACKING GROUP:	II
LABELING REQUIREMENTS:	6.1
MARINE POLLUTANT:	Carbon tetrachloride
RQ (lbs):	RQ 10 Lbs. (Carbon tetrachloride)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER:	UN1846
SHIPPING NAME:	Carbon tetrachloride
CLASS OR DIVISION:	6.1
PACKING/RISK GROUP:	II
LABELING REQUIREMENTS:	6.1
CAN. MARINE POLLUTANT:	Carbon Tetrachloride

MARITIME TRANSPORT (IMO / IMDG) :

UN NUMBER:	UN1846
PROPER SHIPPING NAME:	Carbon tetrachloride
HAZARD CLASS / DIVISION:	6.1
Packing Group:	II
LABELING REQUIREMENTS:	6.1
MARINE POLLUTANT:	Carbon Tetrachloride

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:
Carbon Tetrachloride	10 lb (final RQ)

SARA EHS Chemical (40 CFR 355.30)
Not regulated

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Acute Health Hazard, Chronic Health Hazard

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:
Carbon Tetrachloride	0.1 %

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):
No components in this material are regulated under DHS

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 are listed.

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
Carbon Tetrachloride 56-23-5	Listed	Not Listed	Not Listed	Listed	0347	carcinogen

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
Carbon Tetrachloride 56-23-5	Listed	Listed	Listed	Listed	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

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

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 30-Mar-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: 3 **Flammability:** 0 **Reactivity Rating:** 0

CARBON TETRACHLORIDE, TECHNICAL GRADE

SDS No.: M47013 **SDS Revision Date:** 30-Mar-2015

Reason for Revision:
• Three year review
• Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200}
• Updated the (M)SDS header
• Product Identifier has been added or updated: SEE SECTION 1
• Updated Uses Advised Against information: SEE SECTION 1
• Added OSHA Status: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Added GHS Information: SEE SECTION 2
• Modified Composition/Information on Ingredients: SEE SECTION 3
• Updated First Aid Measures: SEE SECTION 4
• Modified Fire Fighting Measure Recommendations: SEE SECTION 5
• Revised Accidental Release Measures: SEE SECTION 6
• Revised Handling and Storage Recommendations: SEE SECTION 7
• Revised Exposure Controls/Personal Protection information: SEE SECTION 8
• Updated Physical and Chemical Properties. SEE SECTION 9
• Stability and Reactivity recommendations: SEE SECTION 10
• Toxicological Information has been revised: SEE SECTION 11
• Updated Disposal Considerations. SEE SECTION 13
• Updated Transportation Information: SEE SECTION 14
• Regulatory Information Changes: SEE SECTION 15
• Revised Preparer Information: SEE SECTION 16
• Added SDS Revision Date: SEE SECTION 16
• Added Revision log: SEE SECTION 16
• Added "End of Safety Data Sheet" phrase

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