Carbon tetrachloride

sc-239479

Material Safety Data Sheet

Hazard Alert Code Key: EXTREME HIGH MODERATE LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Carbon tetrachloride

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER

Company: Santa Cruz Biotechnology, Inc.
Address:
2145 Delaware Ave
Santa Cruz, CA 95060
Telephone: 800.457.3801 or 831.457.3800
Emergency Tel: CHEMWATCH: From within the US and Canada: 877-715-9305
Emergency Tel: From outside the US and Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

PRODUCT USE

As a fire extinguisher; for cleaning clothing; rendering benzene non-flammable; azeotropic drying agent for wet spark plugs in automobiles; as solvent for oils, lacquers, fats, varnishes, rubber waxes, and resins. Also used for extracting oil from flowers, seeds; exterminating destructive insects; solvent; starting material in manufacture of many organic compounds; production of semiconductors. Regeant

SYNONYMS

CCl4, "methane tetrachloride", perchloromethane, tetrachlorocarbon, tetrachloromethane, Benzinoform, Vermoestricid, Carbona, "carbon chloride", "Carbon Tet", Fasciolin, Flukoids, Necatorina, Necatorine, Tetrafinol, Tetraform, Tetrasol, Univerm

Section 2 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Forms very sensitive explosive metallic compounds.
Limited evidence of a carcinogenic effect.
Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Toxic by inhalation, in contact with skin and if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
- At sufficiently high doses the material may be cardiotoxic (i.e. poisonous to the heart).
- At sufficiently high doses the material may be nephrotoxic(i.e. poisonous to the kidney).
- At sufficiently high doses the material may be hepatotoxic(i.e. poisonous to the liver).

EYE

- Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

SKIN

- Skin contact with the material may produce toxic effects; systemic effectsmay result following absorption.
- The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives .
- Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects.
- The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of vapors, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
- Exposure to less than anaesthetic concentrations of carbon tetrachloride may cause vertigo, headache, depression, mental confusion, nausea, vomiting, diarrhoea, loss of co-ordination, cardiac disturbances, unconsciousness, and possible death. Deaths generally occur as a result of acute liver and/or kidney necrosis,. In many cases the victim is a chronic alcoholic or has a history of heavy drinking.

In an occupational setting workers exposed at 33-124 ppm were reported to be become fatigued within two hours of starting work. Workers exposed at 45-97 ppm reported headache and giddiness. Liver dysfunction also occurred. Symptoms of this dysfunction included nausea, anorexia, flatulence, vomiting, stomach ache, jaundice and an enlarged tender liver. Acute exposures may also produce kidney damage.

- Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.
- Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin).
- Anesthetics and narcotic effects (with dulling of senses and odor fatigue) are a consequence of exposure to chlorinated solvents.

Individual response varies widely; odor may not be considered objectionable at levels which quickly induce central nervous system effects. High vapor concentrations may give a feeling of euphoria. This may result in reduced responses, followed by rapid onset of unconsciousness, possible respiratory arrest and death.

CHRONIC HEALTH EFFECTS

- There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Chronic exposure to carbon tetrachloride may cause liver, heart and kidney damage. Enlarged and tender liver, and jaundice may result from toxic hepatitis. Diminished urinary volume, red and white blood cells in urine, coma and death may be consequences of acute renal failure. Chronic exposure may also cause visual disturbances such as haze, blind spots, narrowing of visual field.

The hazard of systemic effects is increased when carbon tetrachloride is used in conjunction with ingested alcohol.

When administered by gavage, carbon tetrachloride increased the incidence of hepatomas and hepatocellular carcinoma in mice of both sexes. When administered by inhalation carbon tetrachloride induced liver carcinomas in rats. Three case reports describe liver tumors associated with cirrhosis in humans exposed to carbon tetrachloride. A mortality study of laundry and dry cleaning workers exposed to a variety of solvents suggested an excess of respiratory cancers, liver tumors and leukemia.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

HAZARD RATINGS

		Min	Max
Flammability:	0	🟦	

Carbon tetrachloride

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The Power to Question

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Toxicity:	3
Body Contact:	3
Reactivity:	1
Chronic:	2

NAME	CAS RN	%
carbon tetrachloride	56-23-5	>99

Section 4 - FIRST AID MEASURES

SWALLOWED

■

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
- For advice, contact a Poisons Information Center or a doctor.
- Urgent hospital treatment is likely to be needed.
- If conscious, give water to drink.
- INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
- Avoid giving milk or oils.
- Avoid giving alcohol.

EYE

■ If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Center or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

■ If skin or hair contact occurs:

- Quickly but gently, wipe material off skin with a dry, clean cloth.
- Immediately remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Center.
- Transport to hospital, or doctor.

INHALED

■

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

■ for intoxication due to Freons/ Halons;

A: Emergency and Supportive Measures

- Maintain an open airway and assist ventilation if necessary

- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitization may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:

- There is no specific antidote

C: Decontamination

- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. DO NOT induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:

- There is no documented efficacy for diuresis, hemodialysis, hemoperfusion, or repeat-dose charcoal

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition.

- Acute exposures to carbon tetrachloride present, initially, with CNS depression followed by hepatic and renal dysfunction.
- Respiratory depression and cardiac dysrhythmias are an immediate threat to life.
- Since a major fraction of absorbed carbon tetrachloride is exhaled in first hour, good tidal volumes should be maintained in severely poisoned patients; hyperventilation may be an additional therapeutic modality.
- Ipecac syrup, lavage, activated charcoal or catharsis may all be used in the first 4 hours.
- Since reactive metabolites may cause hepatorenal toxicity, administration of N-acetyl-L-cysteine may reduce complications. Experience with this therapy is limited.

[Ellenhorn and Barceloux: Medical Toxicology]. .

* Preplacement and annual medical examinations are recommended for workers exposed to carbon tetrachloride. Preplacement examinations should include an evaluation of alcohol intake, a urinalysis that includes a microscopic examination, and kidney function tests. Special attention should be given to the central nervous system, the skin and blood. Individuals with kidney, liver or central nervous system disorders or who are alcoholics should not be exposed to carbon tetrachloride. (Source: Occupational Diseases)

Note: Consumption of alcohol augments the injurious effects of this substance. (I.L.O.)

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	90.982 @ 20 deg.
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	1.59 @ 25 deg. C
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA

■

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

■

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

■ Decomposes on heating and produces acrid and toxic fumes of: carbon dioxide ($CO2$), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of rigid containers.
- May emit acrid smoke. May emit corrosive and poisonous fumes.

FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
1.PE/EVAL/PE 2.VITON 3.PVA
Respirator:
Type A Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

■

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labeled container for waste disposal.

MAJOR SPILLS

■ Chemical Class: aliphatics, halogenated

For release onto land: recommended sorbents listed in order of priority.

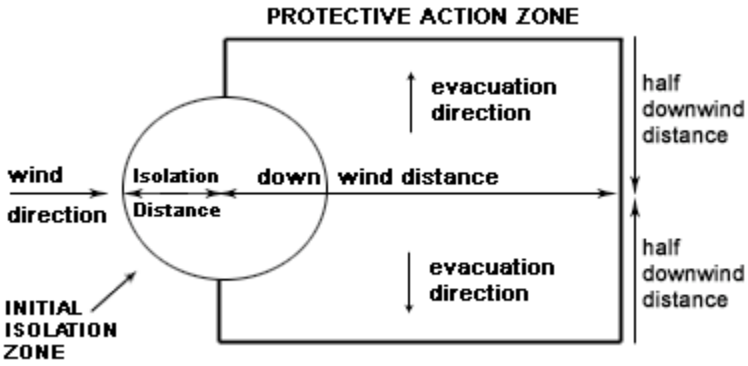
SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
cross-linked polymer - particulate	1	shovel	shovel	R, W, SS
cross-linked polymer - pillow	1	throw	pitchfork	R, DGC, RT
wood fiber - pillow	2	throw	pitchfork	R, P, DGC, RT
treated wood fibre - particulate	2	shovel	shovel	R, W, DGC
sorbent clay - particulate	3	shovel	shovel	R, I, P
foamed glass - pillow	3	throw	pitchfork	R, P, DGC, RT
LAND SPILL - MEDIUM				
cross-linked polymer - particulate	1	blower	skiploader	R,W, SS
cross-linked polymer - pillow	2	throw	skiploader	R, DGC, RT
sorbent clay - particulate	3	blower	skiploader	R, I, P
polypropylene - particulate	3	blower	skiploader	W, SS, DGC
foamed glass - pillow	3	throw	skiploader	R, P, DGC, RT
expanded mineral - particulate	4	blower	skiploader	R, I, W, P, DGC

Legend
DGC: Not effective where ground cover is dense
R; Not reusable
I: Not incinerable
P: Effectiveness reduced when rainy
RT:Not effective where terrain is rugged
SS: Not for use within environmentally sensitive sites
W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;
R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)	
Isolation Distance	25 meters
Downwind Protection Distance	250 meters

FOOTNOTES

1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.
2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.
3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.
4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills". LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.
5 Guide 151 is taken from the US DOT emergency response guide book.
6 IERG information is derived from CANUTEC - Transport Canada.

ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)

AEGL 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.
AEGL 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.
AEGL 3: The airborne concentration of a substance above which it is predicted

that the general population, including susceptible individuals, could
experience life-threatening health effects or death.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

carbon tetrachloride	750ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

carbon tetrachloride	100ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

carbon tetrachloride	20ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

■

- DO NOT allow clothing wet with material to stay in contact with skin
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

RECOMMENDED STORAGE METHODS

■ DO NOT use aluminum or galvanized containers.

- Lined metal can, Lined metal pail/drum
- Plastic pail
- Polyliner drum
- Packing as recommended by manufacturer.
- Check all containers are clearly labeled and free from leaks.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):

- Removable head packaging;
- Cans with friction closures and
- low pressure tubes and cartridges may be used.

- Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages * . - In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *. - * unless the outer packaging is a close fitting molded plastic box and the substances are not incompatible with the plastic. All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

STORAGE REQUIREMENTS

■

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

X X + X X +

X: Must not be stored together
O: May be stored together with specific preventions
+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m^3	STEL ppm	STEL mg/m^3	Peak ppm	Peak mg/m^3	TWA F/CC	Notes
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	carbon tetrachloride (CARBON TETRACHLORIDE)	0.03							
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	carbon tetrachloride (CARBON TETRACHLORIDE)	0.03							
US - Minnesota Permissible Exposure Limits (PELs)	carbon tetrachloride (Carbon tetrachloride)	2	12.6						
Canada - Alberta Occupational Exposure Limits	carbon tetrachloride (Carbon tetrachloride (Tetrachloromethane))	5	31	10	63				
US NIOSH Recommended Exposure Limits (RELs)	carbon tetrachloride (Carbon tetrachloride)			2	12.6				
Canada - Ontario Occupational Exposure Limits	carbon tetrachloride (Carbon tetrachloride)	2	13	3	19				Skin
Canada - British Columbia Occupational Exposure Limits	carbon tetrachloride (Carbon tetrachloride)	2							Skin; A2, 2B

US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	carbon tetrachloride (Carbon tetrachloride)	2	12.6						
US - Idaho - Acceptable Maximum Peak Concentrations	carbon tetrachloride (Carbon tetrachloride (Z37.17-1967))	10				25			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	carbon tetrachloride (Carbon tetrachloride*)	2	12.6			25			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	carbon tetrachloride (Carbon tetrachloride)		See Table Z-2						
US - Idaho - Limits for Air Contaminants	carbon tetrachloride (Carbon tetrachloride)		[2]						
US - California Permissible Exposure Limits for Chemical Contaminants	carbon tetrachloride (Carbon tetrachloride)	2	12.6	10	63	200			
US ACGIH Threshold Limit Values (TLV)	carbon tetrachloride (Carbon tetrachloride)	5		10					TLV Basis: liver damage
US - Michigan Exposure Limits for Air Contaminants	carbon tetrachloride (Carbon tetrachloride (Tetrachloromethane))	2	12.6						
US - Alaska Limits for Air Contaminants	carbon tetrachloride (Carbon tetrachloride)	2	12.6						
Canada - Northwest Territories Occupational Exposure Limits (English)	carbon tetrachloride (Carbon tetrachloride - Skin)	5	32	20	126				
US - Hawaii Air Contaminant Limits	carbon tetrachloride (Carbon tetrachloride)	2	12.6						
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	carbon tetrachloride (Tetrachloromethane, see Carbon Tetrachloride - Skin)	10	65	20	130				
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	carbon tetrachloride (Carbon tetrachloride - Skin)	10	65	20	130				
US - Washington Permissible exposure limits of air contaminants	carbon tetrachloride (Carbon tetrachloride-(Tetrachloromethane))	2		4					
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	carbon tetrachloride (Carbon tetrachloride)	5	31	10	63				
US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	carbon tetrachloride (Carbon tetrachloride (Z37.17-1967))	10				25			
US OSHA Permissible Exposure Levels (PELs) - Table Z2	carbon tetrachloride (Carbon tetrachloride (Z37.17–1967))					25			
US - Oregon Permissible Exposure Limits (Z2)	carbon tetrachloride (Carbon tetrachloride (Z37.17-1967))	10				25			

Canada - Northwest Territories Occupational Exposure Limits (English)	carbon tetrachloride (Tetrachloromethane (Carbon tetrachloride) - Skin)	5	32	20	126	
Canada - Prince Edward Island Occupational Exposure Limits	carbon tetrachloride (Carbon tetrachloride)	5		10		TLV Basis: liver damage
Canada - Nova Scotia Occupational Exposure Limits	carbon tetrachloride (Carbon tetrachloride)	5		10		TLV Basis: liver damage
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	carbon tetrachloride (Diesel fuel as total hydrocarbons, (vapour))		100		150	Skin
US TSCA New Chemical Exposure Limits (NCEL)	carbon tetrachloride (Halogenated alkanes (P84-106/107))	1.0				

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
carbon tetrachloride		200

MATERIAL DATA

CARBON TETRACHLORIDE:

■ For carbon tetrachloride:

Odour Threshold Value: 140-584 ppm (detection), 249 ppm (recognition)

NOTE: Detector tubes measuring in excess of 1 ppm are commercially available.

At 10 ppm animal experiments demonstrate fatty liver infiltration of the liver and the potentiation of carbon tetrachloride toxicity by alcohol and other common substances. The TLV-TWA is thought to provide significant protection in the 70-80% of the population who consume alcohol and have compromised liver function. In addition it is expected that this limit will protect against the development of liver cancer and prevent foetal toxicity and teratogenesis where pregnant woman are exposed. The OSHA PEL TWA provides an extra margin for safety based essentially on a quantitative, cancer multistage, assessment where residual deaths continue to be significant, i.e., 3.7 excess deaths per 1000 workers. Liver necrosis appears to be a precursor to the development of liver tumours in animals and man Evidence of liver necrosis has not been reported in man when exposure was less than 20-50 ppm.

Odour Safety Factor(OSF)

OSF=0.001 (CARBON TETRACHLORIDE).

Exposure limits with "skin" notation indicate that vapor and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapor inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

PERSONAL PROTECTION

Consult your EHS staff for recommendations

EYE

■

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Neoprene rubber gloves

Note: Carbon tetrachloride has a pronounced degrading effect on PVC.

OTHER

■

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

GLOVE SELECTION INDEX

■ Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: carbon tetrachloride

■ Protective Material CPI *.

PE/EVAL/PE	A
VITON	A
PVA	A
TEFLON	A
NITRILE	C
PVC	C
NEOPRENE	C
BUTYL	C

■ * CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

■ Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	A-1	-
1000	50	-	A-1

5000	50	Airline*	-
5000	100	-	A-2
10000	100	-	A-3
	100+		Airline* *

* - Continuous Flow ** - Continuous-flow or positive pressure demand.
The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

ENGINEERING CONTROLS

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator. Correct fit is essential to obtain adequate protection an approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area.
Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapors, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favorable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.
Toxic or noxious vapors/ gas.

State	Liquid	Molecular Weight	153.82
Melting Range (°F)	-9.4	Viscosity	Not Available
Boiling Range (°F)	170.24	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not Applicable	pH (1% solution)	Not applicable

Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not Available	Vapor Pressure (mmHg)	90.982 @ 20 deg.
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	1.59 @ 25 deg. C
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	5.3
Volatile Component (%vol)	100	Evaporation Rate	Not available

APPEARANCE

Very poisonous, colourless, clear, heavy liquid with characteristic odour. Soluble in alcohol, benzene, chloroform and ether. Slightly soluble in water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

■

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

■ Carbon tetrachloride:

- becomes corrosive in contact with water
- reacts explosively on contact with burning wax or uranium, alkali metals, potassium, sulfur diimide, triethylaluminium, triethyldialuminium trichloride
- may react violently with bulk form of barium
- decomposes oxidatively at elevated temperatures; on contact with flame, hot surfaces or welding arcs, forming hydrogen chloride and phosgene
- forms heat-, impact- and friction- sensitive explosive mixtures with calcium disilicide, calcium hypochlorite, chlorine trifluoride, decaborane, dinitrogen tetroxide, lithium, and the finely divided form or powder of many metals (e.g. aluminium, barium, beryllium, lithium, magnesium, sodium)
- forms extremely shock-sensitive mixtures with potassium or sodium-potassium alloy
- reacts violently or explosively with allyl alcohol, antimony triethyl, boron hydrides, bromine, bromine trifluoride, calcium hypochlorite, disilane, ethylene, fluorine, liquid oxygen, potassium tert-butoxide, tetraethylenepentamine, tetrasilane (Si_4H_{10}), trisilane (Si_3H_8), plutonium, zinc, zirconium
- generates heat on contact with light metals
- is incompatible with aluminium trichloride, dibenzoyl peroxide, lithium nitride, dimethylformamide (above 65 C)
- attacks some plastics and rubbers
- attacks many metals, especially in the presence of moisture and/ or heat
- may generate electrostatic charge of flow

Haloalkanes:

- are highly reactive:some of the more lightly substituted lower members are highly flammable; the more highly substituted may be used as fire suppressants, not always with the anticipated results.
- may react with the lighter divalent metals to produce more reactive compounds analogous to Grignard reagents.
- may produce explosive compounds following prolonged contact with metallic or other azides
- may react on contact with potassium or its alloys - although apparently stable on contact with a wide rage of halocarbons, reaction products may be shock-sensitive and may explode with great violence on light impact; severity generally increases with the degree of halocarbon substitution and potassium-sodium alloys give extremely sensitive mixtures .

BRETHERICK L.: Handbook of Reactive Chemical Hazards

- react with metal halides and active metals, eg. sodium (Na), potassium (K), lithium (Li),calcium (Ca), zinc (Zn), powdered aluminium (Al) and aluminium alloys, magnesium (Mg) and magnesium alloys.
- may react with brass and steel.
- may react explosively with strong oxidisers
- may degrade rubber, and plastics such as methacrylate polymers, polyethylene and polystyrene, paint and coatings

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

carbon tetrachloride

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (human) LDLo: 43 mg/kg	Skin (rabbit): 500 mg/24 h - Mild
Oral (rat) LDLo: 2350 mg/kg	Eye (rabbit): 500 mg/24 h - Mild
Inhalation (human) TCLo: 20 ppm	Eye (rabbit): 2200ug/30s - Mild
Dermal (rat) LD50: 5070 mg/kg	
Oral (rat) LD50: 900 mg/kg	
Inhalation (human) TCLo: 10 mg/m^3/1 y	

■ The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

CARCINOGEN

Carbon tetrachloride	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
Carbon tetrachloride	US EPA Carcinogens Listing	Carcinogenicity	B2
Carbon tetrachloride	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	B2
Carbon tetrachloride	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A2
CARBON TETRACHLORIDE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
CARBON TETRACHLORIDE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
ORGANOCHLORINE PESTICIDES	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
Carbon tetrachloride	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2B
Carbon tetrachloride	US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	Carcinogen	Ca

REPROTOXIN

carbon tetrachloride	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	A

SKIN

carbon tetrachloride	Canada - Ontario Occupational Exposure Limits - Skin	Notes	Skin
carbon tetrachloride	US AIHA Workplace Environmental Exposure Levels (WEELs) - Skin	Notes	Skin
carbon tetrachloride	Canada - Quebec Permissible Exposure Values for Airborne Contaminants - Skin (French)	Notes	Skin
carbon tetrachloride	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
carbon tetrachloride	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	Yes
carbon tetrachloride	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin; A2, 2B
carbon tetrachloride	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin

carbon tetrachloride	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
carbon tetrachloride	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	X
carbon tetrachloride	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	S
carbon tetrachloride	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:
CARBON TETRACHLORIDE:

Marine Pollutant:	Yes
■ Hazardous Air Pollutant:	Yes
■ Fish LC50 (96hr.) (mg/l):	125- 150
■ Algae IC50 (72hr.) (mg/l):	600
■ log Kow (Prager 1995):	2.62- 2.83
■ log Kow (Sangster 1997):	2.83
■ log Pow (Verschueren 1983):	2.64
■ Half- life Soil - High (hours):	8640
■ Half- life Soil - Low (hours):	4320
■ Half- life Air - High (hours):	1.60E+05
■ Half- life Air - Low (hours):	1.60E+04
■ Half- life Surface water - High (hours):	8640
■ Half- life Surface water - Low (hours):	4032
■ Half- life Ground water - High (hours):	8640
■ Half- life Ground water - Low (hours):	168
■ Aqueous biodegradation - Aerobic - High (hours):	8640
■ Aqueous biodegradation - Aerobic - Low (hours):	4032
■ Aqueous biodegradation - Anaerobic - High (hours):	672
■ Aqueous biodegradation - Anaerobic - Low (hours):	168
■ Aqueous biodegradation - Removal secondary treatment - High (hours):	99%
■ Photolysis maximum light absorption - High (nano- m):	275
■ Photolysis maximum light absorption - Low (nano- m):	220
■ Photooxidation half- life air - High (hours):	1.60E+05
■ Photooxidation half- life air - Low (hours):	1.60E+04
■ First order hydrolysis half- life (hours):	7000

■ For carbon tetrachloride:
Koc: 110
Half-life (hr) H2O surface water: 0.5-7200
Henry's atm m3 /mol: 3.04E-02
BOD 5: 0
ThOD: 0.21
BCF: 17.4
log BCF: 1.24-1.48
controlled ozone depleting gases: phase out by 1996 (C)

controlled ozone depleting potential: 1.1
Environmental fate:
Nearly all carbon tetrachloride released to the environment exists in the atmosphere (73% is released to the atmosphere directly). Most of the carbon tetrachloride released to soil and water evaporates within a few days. Because carbon tetrachloride does not degrade readily in the atmosphere, significant global transport is expected. Although carbon tetrachloride is moderately soluble in water (800 mg/L at 20 C) only about 1% of the total carbon tetrachloride in the environment exists dissolved in surface waters and oceans. This is attributable to the relatively high rate of volatilization of low molecular weight chlorinated hydrocarbons from water. Because of this, carbon tetrachloride also tends to volatilize from tap water used for showering, bathing, cooking, and other household uses inside a home.
Most carbon tetrachloride released to soil is expected to volatilize rapidly due to its high vapor pressure (91.3 mm Hg at 20 C) A fraction of the carbon tetrachloride remaining in the soil may adsorb to the soil organic matter, based on a calculated soil sorption coefficient of 110 (log Koc of 2.04). Nevertheless, carbon tetrachloride is expected to be moderately mobile in most soils, depending on the organic carbon content, and leaching to groundwater is possible. Marine sediments high in organic matter tended to have higher concentrations of carbon tetrachloride than did sediments with lower organic matter. The composition of the soil organic matter and the water content of the soil may also affect sorption of carbon tetrachloride
Experimentally determined Koc values for sorption of carbon tetrachloride on soils with organic carbon contents of 1.49 and 0.66% were 143.6 and 48.89 (log Koc = 2.16 and 1.69), respectively. The retardation factor of carbon tetrachloride in breakthrough sampling in groundwater ranged from 1.4 to 1.7, indicating that soil adsorption is a relatively minor fate process Retardation factors for carbon tetrachloride measured in a flow-through system studying sorption of organics to aquifer materials with very low organic carbon (0.07-0.025%) ranged from 1.10 to 1.46 confirming this conclusion.
There is little tendency for carbon tetrachloride to bioconcentrate in aquatic or marine organisms. Reported log bioconcentration factors (BCFs) were 1.24 and 1.48 in trout and bluegill sunfish, respectively. However, the log octanol/water partition coefficient (log Kow) of 2.64 for carbon tetrachloride suggests that bioaccumulation is at least possible under conditions of constant exposure and may occur in occupational settings or in people living at or near hazardous waste sites.Since most animals readily metabolize and excrete carbon tetrachloride following exposure biomagnification is not expected.
Carbon tetrachloride is very stable in the troposphere. This is primarily because carbon tetrachloride does not react with hydroxyl radicals that initiate breakdown and transformation reactions of other volatile hydrocarbons. In addition, carbon tetrachloride does not photodissociate in the troposphere because, in the vapor state, it has no chromophores that absorb light in those visible or near ultraviolet regions of the electromagnetic spectrum, which prevail in the troposphere. The rate of oxidation of carbon tetrachloride is thought to be so slow that its estimated tropospheric half-life exceeds 330 years. 1976). Ultimately, carbon tetrachloride that is not removed from the troposphere by rainfall diffuses upward into the stratosphere where it may be photodegraded by shorter wavelength ultraviolet light (185-225 nm) more prevalent in this region of the atmosphere to form the trichloromethyl radical and chlorine atoms. The rate of photodissociation begins to become important at altitudes >20 km, and increases as altitude increases Estimates of the atmospheric lifetime (the overall persistence of carbon tetrachloride in the troposphere and the stratosphere combined) are variable, but most values range from 30 to 100 years with 50 years generally being accepted as the most reasonable value.
Chlorine atoms and other chlorine species formed by photodecomposition of carbon tetrachloride in the stratosphere can catalyze reactions that destroy ozone.
Ecotoxicity:
Fish LC50 (96 h): 125-150 ppm.

- On the basis of the available evidence concerning properties and predicted or observed environmental fate and behavior, the material may present a danger to the structure and/ or functioning of the stratospheric ozone layer.
- DO NOT discharge into sewer or waterways.
- Following release of ozone-depleting substances into the atmosphere, they eventually enter the troposphere where they persist undegraded. Subsequently they diffuse into the stratosphere and degrade slowly. In the stratosphere, these substances react slowly with oxygen free radicals and release halogen atoms which catalytically destroy ozone, producing irreversible damage. Use of these substances has been restricted by the Montreal Protocol on Substances that Deplete the Ozone Layer (1988) and also by US EPA Regulation 3093/94. Ozone depleters do not degrade readily in the ambient atmosphere; some have a half-life of more than 100 years for the photochemical reaction producing hydroxy radicals.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
carbon tetrachloride	HIGH	HIGH	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Toxicity characteristic: use EPA hazardous waste number D019 (waste code E) if this substance, in a solid waste, produces an extract containing greater than 0.5 mg/L of Carbon tetrachloride.
B. Component Waste Numbers
When carbon tetrachloride is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U211 (waste code T).

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

¦ Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction,
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols:	None	Hazard class or Division:	6.1
Identification Numbers:	UN1846	PG:	II
Label Codes:	6.1	Special provisions:	IB2, N36, T7, TP2
Packaging: Exceptions:	153	Packaging: Non-bulk:	202
Packaging: Exceptions:	153	Quantity limitations: Passenger aircraft/rail:	5 L
Quantity Limitations: Cargo aircraft only:	60 L	Vessel stowage: Location:	A
Vessel stowage: Other:	40	S.M.P.:	YES

Hazardous materials descriptions and proper shipping names:
Carbon tetrachloride

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1846	Packing Group:	II
Special provisions:	None		

Shipping Name: CARBON TETRACHLORIDE

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	1846	Packing Group:	II
EMS Number:	F-A,S-A	Special provisions:	None
Limited Quantities:	100 ml	Marine Pollutant:	Yes

Shipping Name: CARBON TETRACHLORIDE

Section 15 - REGULATORY INFORMATION

carbon tetrachloride (CAS: 56-23-5) is found on the following regulatory lists;
"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Ontario Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Industrial Hazardous Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada ARET (Accelerated Reduction / Elimination of Toxics) Substance List","Canada Domestic Substances List (DSL)","Canada Environmental Protection Act (CEPA) 1999 - Schedule 1 Toxic Substances List","Canada Environmental Protection Act (CEPA) 1999 - Schedule 3 Export Control List - Part 3 Restricted Substances","Canada Environmental Quality Guidelines (EQGs) Water: Aquatic life","Canada Environmental Quality Guidelines (EQGs) Water: Community","Canada Ingredient Disclosure List (SOR/88-64)","Canada National Pollutant Release Inventory (NPRI)","Canada Prohibited Toxic Substances, Schedule 2, Concentration Limits (English)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (French)","GESAMP/EHS Composite List - GESAMP Hazard Profiles","IMO IBC Code Chapter 17: Summary of minimum requirements","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","International Council of Chemical Associations (ICCA) - High Production Volume List","OECD Representative List of High Production Volume (HPV) Chemicals","US - Alaska Limits for Air Contaminants","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified","US - California Code of Regulation; Identification and Listing of Hazardous Waste, Table 1 - Maximum Concentrations for the Toxicity Characteristics","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)","US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - Carcinogens","US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens","US - California Toxic Air Contaminant List Category II","US - Hawaii Air Contaminant Limits","US - Idaho - Acceptable Maximum Peak Concentrations","US - Idaho - Limits for Air Contaminants","US - Maine Chemicals of High Concern List","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Oregon Permissible Exposure Limits (Z1)","US - Oregon Permissible Exposure Limits (Z2)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Hazardous Constituents","US - Vermont Hazardous Waste - Maximum Contaminant Concentration for Toxicity","US - Vermont Hazardous wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Class A toxic air pollutants: Known and Probable Carcinogens","US - Washington Dangerous waste constituents list","US - Washington Discarded Chemical Products List - ""U"" Chemical Products","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)","US CAA (Clean Air Act) - HON Rule - Organic HAPs (Hazardous Air Pollutants)","US CERCLA Priority List of Hazardous Substances","US Clean Air Act - Hazardous Air Pollutants","US CWA (Clean Water Act) - Priority Pollutants","US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances","US CWA (Clean Water Act) - Toxic Pollutants","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US Department of Transportation (DOT) Marine Pollutants - Appendix B","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGLs) - Interim","US EPA Carcinogens Listing","US EPA High Production Volume Program Chemical List","US EPA National Priorities List - Superfund Chemical Data Matrix (SCDM) - Hazard Ranking System - Hazardous Substance Benchmarks","US EPCRA Section 313 Chemical List","US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives","US List of Lists - Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act","US National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US OSHA Permissible Exposure Levels (PELs) - Table Z2","US RCRA (Resource Conservation & Recovery Act) - Appendix IX to Part 264 Ground-Water Monitoring List 1","US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Inorganic and Organic Constituents 1","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes","US RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards","US Toxic Substances Control Act (TSCA) - Inventory","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

Section 16 - OTHER INFORMATION

Carbon tetrachloride

sc-239479

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

LIMITED EVIDENCE

■ Repeated exposure potentially causes skin dryness and cracking*.
* (limited evidence).

■ Classification of the mixture and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Issue Date: Feb-21-2010

Print Date:Apr-30-2010