Tel: 514-956-7503
Fax: 514-956-7504
Internet: www.megs.ca
Email : support@megs.ca

Montreal	St-Laurent	Tel : 514-956-7503	Fax : 514-956-7504
Ottawa	Nepean	Tel : 613-226-4228	Fax : 613-226-4229
Quebec	Quebec	Tel : 418-834-7447	Fax : 418-834-3774

CHLOROFORM- MATERIAL SAFETY DATA SHEET

TABLE OF CONTENTS:

24 Hour EMERGENCY CONTACT

U.S- CHEMTREC 1-800-424-9300

CANADA- CANUTEC 613-996-6666

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Up to Table of Contents

Matheson Tri-Gas, Inc.

The telephone numbers listed below are emergency numbers, please contact your local branch for routine inquiries.

USA	CANADA
959 Route 46 East	530 Watson Street
Parsippany, New Jersey	Whitby, Ontario
07054-0624 USA	L1N 5R9 Canada
Phone: 973-257-1100	**Phone:** 905-668-3570

SUBSTANCE: CHLOROFORM

SYMBOL: $CHCl_3$

TRADE NAMES/SYNONYMS:
TRICHLOROMETHANE; METHANE TRICHLORIDE; R 20; FREON 20; METHANE, TRICHLORO-; METHYL TRICHLORIDE; TRICHLOROFORM; R 20 (REFRIGERANT); METHENYL TRICHLORIDE; RCRA U044; UN 1888; CHCL3; MAT04770; RTECS FS9100000

CHEMICAL FAMILY: halogenated, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Mar 16 1999

2. COMPOSITION, INFORMATION ON INGREDIENTS

Up to Table of Contents

COMPONENT: CHLOROFORM

CAS NUMBER: 67-66-3

EC NUMBER (EINECS): 200-663-8

PERCENTAGE: >99

COMPONENT: STABILIZERS

CAS NUMBER: Not assigned.

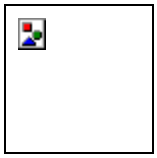
EC NUMBER: Not assigned.

PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

Up to Table of Contents

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

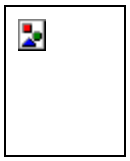


WHMIS CLASSIFICATION: D2

EC CLASSIFICATION (ASSIGNED):
Xn Harmful
Xi Irritant
Carcinogen Category 3

R 22-38-40-48/20/22

EC Classification may be inconsistent with independently-researched data.



EMERGENCY OVERVIEW:
Color: colorless

Physical Form: volatile liquid

Odor: sweet odor and taste

Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression, kidney damage, suspect cancer hazard (in animals)

POTENTIAL HEALTH EFFECTS:

INHALATION:
Short Term Exposure: irritation, nausea, vomiting, irregular heartbeat, headache, drowsiness, symptoms of drunkenness, fainting, disorientation, dilated pupils, kidney damage, liver damage, convulsions, coma
Long Term Exposure: digestive disorders, tingling sensation, blurred vision, liver enlargement

SKIN CONTACT:
Short Term Exposure: irritation
Long Term Exposure: same as effects reported in short term exposure

EYE CONTACT:
Short Term Exposure: irritation, tearing
Long Term Exposure: same as effects reported in short term exposure

INGESTION:
Short Term Exposure: nausea, vomiting, diarrhea, difficulty breathing, symptoms of drunkenness, dilated pupils, bluish skin color, kidney damage, liver damage
Long Term Exposure: kidney damage, liver damage, cancer

CARCINOGEN STATUS:
OSHA: N
NTP: Y
IARC: Y

4. FIRST AID MEASURES

Up to Table of Contents

INHALATION:
Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

SKIN CONTACT:
Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

EYE CONTACT:

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

INGESTION:
For ingestion, consider gastric lavage. Consider oxygen. Avoid epinephrine. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

Up to Table of Contents

FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard.

EXTINGUISHING MEDIA:
regular dry chemical, regular foam, water

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING:
Move container from fire area if it can be done without risk. Fight large fires from a protected location or safe distance. Stay away from the ends of tanks. Dike for later disposal. Do not scatter spilled material with high-pressure water streams.

FLASH POINT:
No data available.

6. ACCIDENTAL RELEASE MEASURES

Up to Table of Contents

SOIL RELEASE:
Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Absorb with sand or other non-combustible material. Collect with absorbent into suitable container.

WATER RELEASE:
Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Remove trapped material with suction hoses. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Small dry spills: Move containers away from spill to a safe area. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Reportable Quantity (RQ): Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

Up to Table of Contents

Store and handle in accordance with all current regulations and standards. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Store in a cool, dry place. Store in a well-ventilated area. Keep separated from incompatible substances. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Up to Table of Contents

EXPOSURE LIMITS:
CHLOROFORM:
50 ppm (240 mg/m3) OSHA ceiling
2 ppm (9.78 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
10 ppm (49 mg/m3) ACGIH TWA
2 ppm (9.78 mg/m3) NIOSH recommended STEL 60 minute(s)

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

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Up to Table of Contents

PHYSICAL STATE: liquid

APPEARANCE: clear

COLOR: colorless

PHYSICAL FORM: volatile liquid

ODOR: sweet odor and taste

MOLECULAR WEIGHT: 119.38

MOLECULAR FORMULA: C-H-CL3

BOILING POINT: 144 F (62 C)

FREEZING POINT: -83 F (-64 C)

VAPOR PRESSURE: 160 mmHg @ 20 C

VAPOR DENSITY (air=1): 4.12

SPECIFIC GRAVITY (water=1): 1.4832

WATER SOLUBILITY: 0.82% @ 20 C

PH: Not available

VOLATILITY: 100%

ODOR THRESHOLD: 200 ppm

EVAPORATION RATE: 11.6 (butyl acetate=1)

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetone, benzene, ligroin, naphtha, petroleum ether, carbon tetrachloride, carbon disulfide, oils, organic solvents

10. STABILITY AND REACTIVITY

Up to Table of Contents

REACTIVITY:
Stable at normal temperatures and pressure.

CONDITIONS TO AVOID:
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES:
metals, combustible materials, oxidizing materials, halogens, bases

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of chlorine, carbon, phosgene, chlorine, acid halides

POLYMERIZATION:
Will not polymerize.

11. TOXICOLOGICAL INFORMATION

Up to Table of Contents

CHLOROFORM:

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

TOXICITY DATA:
47702 mg/m3/4 hour(s) inhalation-rat LC50; >4000 mg/kg skin-rabbit LD50 (Dow); 908 mg/kg oral-rat LD50

CARCINOGEN STATUS:
NTP: Anticipated Human Carcinogen; IARC: Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B; ACGIH: A3 -Animal Carcinogen

LOCAL EFFECTS:
Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation

TARGET ORGANS:
central nervous system, liver, kidneys

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
history of alcoholism, eye disorders, heart problems, kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies

TUMORIGENIC DATA:
Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA:
Available.

ADDITIONAL DATA:
May be excreted in breast milk. Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

Up to Table of Contents

ECOTOXICITY DATA:

FISH TOXICITY:
66800 ug/L 96 hour(s) LC50 (Mortality) Rainbow trout,donaldson trout (Oncorhynchus mykiss)

INVERTEBRATE TOXICITY:
32000 ug/L 96 hour(s) NOEC (Mortality) Pink shrimp (america) (Penaeus duorarum)

ALGAL TOXICITY:
>3200000 ug/L 48 hour(s) (Population Growth) Cryptomonad (Chilomonas paramecium)

OTHER TOXICITY:
270 ug/L 7 hour(s) EC50 (Teratogenesis) Spring peeper (Hyla crucifer)

FATE AND TRANSPORT:

BIOCONCENTRATION:
690 Ci/mol 6 hour(s) BCF (Residue) Green algae (Selenastrum capricornutum) 13.9 Ci/mol

13. DISPOSAL CONSIDERATIONS

Up to Table of Contents

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U044. Hazardous Waste Number(s): D022. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 6.0 mg/L.

14. TRANSPORT INFORMATION

Up to Table of Contents

U.S. DOT 49 CFR 172.101. SHIPPING NAME-UN NUMBER; HAZARD CLASS; PACKING GROUP; LABEL:
Chloroform-UN1888; 6.1; III; Keep away from food

15. REGULATORY INFORMATION

Up to Table of Contents

U.S. REGULATIONS:
TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): Y
Chloroform: 10 LBS RQ

SARA SECTION 302 (40CFR355.30): Y
Chloroform: 10000 LBS TPQ

SARA SECTION 304 (40CFR355.40): Y
Chloroform: 5000 LBS RQ

SARA SECTION 313 (40CFR372.65): Y
Chloroform

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
ACUTE: Y
CHRONIC: Y
FIRE: N
REACTIVE: N
SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:
California Proposition 65: Y
Known to the state of California to cause the following:
Chloroform
Cancer (Oct 01, 1987)

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 200-663-8

EC RISK AND SAFETY PHRASES:

R 22	Harmful if swallowed.
R 38	Irritating to skin.
R 40	Possible risks of irreversible effects.
R 48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
S 2	Keep out of reach of children.
S 36/37	Wear suitable protective clothing and gloves.

CONCENTRATION LIMITS:
C>=20% Xn R 22-38-40-48/20/22
5%<=C<20% Xn R 22-40-48/20/22
1%<=C<5% Xn R 40

16. OTHER INFORMATION

Up to Table of Contents

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