



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Chloroform**

Chemical formula : C-H-Cl₃

Synonyms : Trichloromethane; Methane Trichloride; R 20; Freon 20; Methyl Trichloride; Trichloroform; R 20 (Refrigerant); Methenyl Trichloride; UN 1888

Company : Specialty Gases of America, Inc
6055 Brent Dr.
Toledo, OH 43611

Telephone : 419-729-7732

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Chloroform	67-66-3	> 99%
Stabilizers		< 0.1%

3. Hazards Identification

Emergency Overview

May cause respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression, kidney damage, suspect cancer hazard (in animals).

Potential Health Effects

Inhalation : Irritation, changes in blood pressure, nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hyperactivity, loss of coordination, dilated pupils, blood disorders, heart damage, kidney damage, liver damage, convulsions, unconsciousness, coma. May cause nausea, vomiting, diarrhea, loss of appetite, headache, disorientation, tremors, blurred vision, blood disorders, kidney damage, liver damage in long term exposure.

Eye contact : Irritation, visual disturbances.

Skin contact : Irritation, changes in blood pressure, nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hyperactivity, loss of coordination, dilated pupils, blood disorders, heart damage, kidney damage, liver damage, convulsions, unconsciousness, coma. May cause nausea, vomiting, diarrhea, loss of appetite, headache, disorientation, tremors, blurred vision, blood disorders, kidney damage, liver damage in long term exposure.

Ingestion : Irritation, changes in blood pressure, nausea, vomiting, diarrhea, stomach pain, chest pain, difficulty breathing, muscle cramps, dilated pupils, bluish skin color, kidney damage, liver damage, unconsciousness. May cause kidney damage, liver damage, cancer in long term exposure.

Chronic Health : None.

Hazard

4. First Aid Measures

- General advice : None.
- Eye contact : Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.
- Skin contact : Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
- Ingestion : For ingestion, consider gastric lavage. Consider oxygen. Avoid epinephrine. Get medical attention immediately.
- Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

5. Fire-Fighting Measures

- Suitable extinguishing media : Regular dry chemical, regular foam, water.
Large fires: Use regular foam or flood with fine water spray.
- Specific hazards : Negligible fire hazard.
- 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.

6. Accidental Release Measures

- 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 materials. Collect with absorbent into suitable container.
- Water release : Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers. 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.
- Occupations spill/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. 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).
- Additional advice : None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

Storage

Store in accordance with all current regulations and standards. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to 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 Part B). Store in a cool, dry place. Store in a well-ventilated area. Keep separated from incompatible substances.

8. Exposure Controls / Personal Protection

Exposure limits

ACGIH	:	10 ppm TWA
OSHA (final)	:	50 ppm Ceiling; 240 mg/m ³ Ceiling
OSHA (vacated)	:	2 ppm TWA; 9.78 mg/m ³ TWA
NIOSH	:	2 ppm STEL 60 min; 9.78 mg/m ³ STEL 60 min

IDLH

500 ppm

Engineering measures/Ventilation

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

Personal protective equipment

Respiratory protection	:	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 a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape – Any air-purifying full-face respirator (gas mask) with a chin-style, front-mounted or back-mounted 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 a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Hand protection	:	Wear appropriate chemical resistant gloves.
Eye protection	:	Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Skin and body protection	:	Wear appropriate chemical resistant clothing.

9. Physical and Chemical Properties

Form	:	Volatile liquid.
Color	:	Colorless.
Odor	:	Sweet odor and taste.
Molecular weight	:	119.38
Vapor pressure	:	160 mmHg @ 20°C
Vapor density	:	4.12 (air = 1)
Specific gravity	:	1.4832 (water = 1)
Boiling point	:	144°F (62°C)
Melting point	:	-83°F (-64°C)

Water solubility : 0.82% @ 20°C
Solvent solubility : Soluble: alcohol, ether, acetone, benzene, ligroin, naphtha, petroleum ether, carbon tetrachloride, carbon disulfide, oils, organic solvents

10. Stability and Reactivity

Stability : 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.
Materials to avoid : Metals, combustible materials, oxidizing materials, halogens, bases.
Hazardous decomposition products : Thermal decomposition products: oxides of chlorine, carbon, phosgene, chlorine and halides.

11. Toxicological Information

The components of this material have been reviewed in various sources and the following selected endpoints are published:

CHLOROFORM (67-66-3) : Inhalation LC50 Rat: 47702 mg/kg/4H; Oral LD50 Rat: 695 mg/kg; Dermal LD50 Rabbit: >3980mg/kg

Acute Toxicity Level

CHLOROFORM (67-66-3) : Toxic: ingestion
Moderately toxic: inhalation

Component Carcinogenicity

ACGIH : A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans.

IARC : Monograph 73 [1999] (Group 2B (possibly carcinogenic to humans))
DFG : Category 4 (no significant contribution to human cancer)
Present
Reasonably Anticipated To Be A Human Carcinogen

Local Effects

CHLOROFORM (67-66-3) : Irritant: inhalation, skin, eye.

Target Organs

CHLOROFORM (67-66-3) : 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

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

Aquatic Toxicity

CHLOROFORM (67-66-3) : Fish: 96 Hr LC50 Pimephales promelas: 71 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 18 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 18 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 300 mg/L [static]

Algae: 48 Hr EC50 Desmodemus subspicatus: 560 mg/L
Invertebrate: 48 Hr EC50 Daphnia magna: 29 mg/L

13. Disposal Considerations

Waste from residues / unused products : 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.

Contaminated packaging : Return cylinder to supplier.

14. Transport Information

DOT (US only)

Proper shipping name : Chloroform
Class : 6.1, Packing Group III
UN/ID No. : UN1888
Labeling : Poisonous

15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

CHLOROFORM (67-66-3) : SARA 302: 1000 lb TPQ
10 lb final RQ; 4.54 kg final RQ
SARA 313: 0.1 % de minimis concentration
CERCLA: 10 lb final RQ; 4.54 kg final RQ

SARA 311/312

Acute: Yes
Chronic: Yes
Fire: No
Reactive: No
Pressure: No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
CHLOROFORM	67-66-3	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enhancement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

16. Other Information

Prepared by : Specialty Gases of America, Inc.

For additional information, please visit our website at www.americangasgroup.com.