

MATERIAL SAFETY DATA SHEET

1. Identification

Product Name	Chloroform
Cat No. :	AC610280000; AC610281000
CAS No	67-66-3
Synonyms	Methane trichloride; Methenyl trichloride; Formyl trichloride
Recommended Use	Laboratory chemicals.
Uses advised against	.

Details of the Manufacturer/supplier of the safety data sheet

Cocreate Global Technologies Private Limited (Scimplify) FFK Towers, #445, 2nd & 3rd Floor, 17th Cross Road, Sector 4, HSR Layout, Bangalore, Bangalore South, Karnataka - 560102, India.

Email: info@scimplify.com

Website: www.scimplify.com

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney.	

Label Elements

Signal Word

Danger

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Hazard Statements

Harmful if swallowed

Toxic if inhaled

Causes skin irritation

Causes serious eye irritation

Suspected of causing cancer

Suspected of damaging the unborn child

May cause respiratory irritation

May cause drowsiness or dizziness

May cause damage to organs through prolonged or repeated exposure



Precautionary Statements

Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

Wear eye/face protection

Do not breathe dust/fume/gas/mist/vapors/spray

Response

IF exposed or concerned: Get medical attention/advice

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

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

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Storage

Store locked up

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

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Chloroform	67-66-3	>99
1-Pentene	109-67-1	0.01

4. First-aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Phosgene. Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
2

Flammability
0

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions

Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage.

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Store under an inert atmosphere. Protect from moisture. Incompatible Materials. Strong oxidizing agents. Alkali metals. Aluminium. Acetone.

8. Exposure controls / personal

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Chloroform	TWA: 10 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m ³ Ceiling: 50 ppm Ceiling: 240 mg/m ³	IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 50 ppm STEL: 225 mg/m ³

Legend

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

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9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-63 °C / -81.4 °F
Boiling Point/Range	61 °C / 141.8 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	213 mbar @ 20 °C
Vapor Density	No information available
Specific Gravity	1.480
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	0.56 mPa s at 20 °C
Molecular Formula	C H Cl ₃
Molecular Weight	119.38
VOC Content(%)	100

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR. Light sensitive.
Conditions to Avoid	Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture.
Incompatible Materials	Strong oxidizing agents, Alkali metals, Aluminium, Acetone
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Phosgene, Hydrogen chloride gas
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroform	LD50 = 908 mg/kg (rat) LD50 = 695 mg/kg (Rat) LD50 = 450 mg/kg (Rat)	LD50 > 20 g/kg (Rabbit)	LC50 = 10.5 mg/L (Rat) 4 h
1-Pentene	>2000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	LC50 = 10000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Chloroform	67-66-3	Group 2B	Reasonably Anticipated	A3	X	A3
1-Pentene	109-67-1	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

*IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans*

Mutagenic Effects No information available

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Study result . negative.

STOT - single exposure Central nervous system (CNS)

STOT - repeated exposure Liver Kidney

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms.

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chloroform	EC50 = 560 mg/L/48h	LC50: = 300 mg/L, 96h static (Poecilia reticulata) LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 18 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 71 mg/L, 96h flow-through (Pimephales promelas)	Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min	EC50 = 28.9 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Chloroform - 67-66-3	U044	-

14. Transport information

DOT

UN-No UN1888
Proper Shipping Name CHLOROFORM
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1888
Proper Shipping Name CHLOROFORM
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

Component	log Pow
Chloroform	2
1-Pentene	2.66

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15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Chloroform	67-66-3	X	ACTIVE	-
1-Pentene	109-67-1	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Chloroform	67-66-3	X	-	200-663-8	X	X	X	X	X	X
1-Pentene	109-67-1	X	-	203-694-5	X	X	X	X	X	KE-28027

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

Component	Hazardous Substances RQs	CERCLA EHS RQs
Chloroform	10 lb 1 lb	10 lb

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Chloroform	67-66-3	Carcinogen Developmental	20 µg/day 40 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Chloroform	X	X	X	X	X
1-Pentene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Chloroform	Release STQs - 20000lb
1-Pentene	Release STQs - 10000lb

Other International Regulations

Mexico - Grade No information available

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Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Chloroform	67-66-3	Listed	Not applicable	Not applicable	Not applicable
1-Pentene	109-67-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Chloroform	67-66-3	Not applicable	Not applicable	Not applicable	Annex I - Y45
1-Pentene	109-67-1	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS