

CHLOROFORM-D 99.8% WITH 0.03% TMS(V/V)

GHS Safety Data Sheet

Version No:2.0
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

CHLOROFORM-D 99.8% WITH 0.03% TMS(V/V)

PROPER SHIPPING NAME

CHLOROFORM

PRODUCT USE

■ Used according to manufacturer's directions.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. IND. ESTATE

248, WORLI ROAD

MUMBAI- 400 030

INDIA

Telephone: 91- 22- 2495 9898

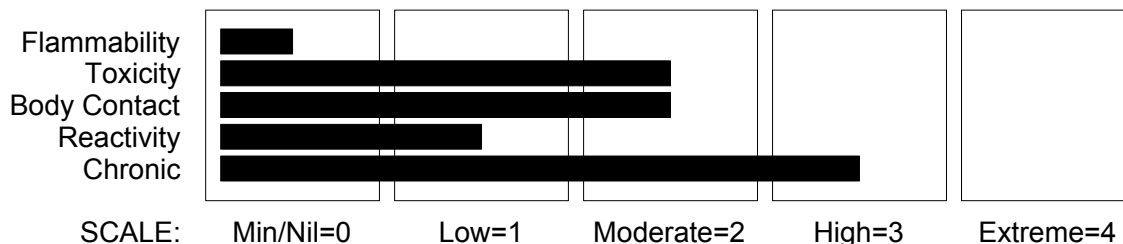
Telephone: 91- 22- 2495 9899

Fax: 91- 22- 2493 7232

Email: technical@sdfine.com

Section 2 - HAZARDS IDENTIFICATION

HAZARD RATINGS



GHS Classification

Acute Toxicity (Oral) Category 4

Aspiration Hazard Category 1

Carcinogen Category 1B

Eye Irritation Category 2A

Organ Damage Category 2

Reproductive Toxicity Category 1B

Respiratory Effects Category 3

Skin Corrosion/Irritation Category 2



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Section 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well- ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P331	Do NOT induce vomiting.
P337+P313	If eye irritation persists: Get medical advice/attention.

Storage

P403+P233	Store in a well- ventilated place. Keep container tightly closed.
P405	Store locked up.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
chloroform- D	865-49-6	99.8
tetramethylsilane	75-76-3	0.03

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- For advice, contact a Poisons Information Centre or a doctor.
- Avoid giving milk or oils.
- Avoid giving alcohol.

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Section 4 - FIRST AID MEASURES

- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

EYE

- If this product comes in contact with the eyes:
 - Wash out immediately with fresh 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.
 - Seek medical attention without delay; if pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
 - Immediately remove all contaminated clothing, including footwear.
 - Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

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.

NOTES TO PHYSICIAN

- Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically.

Treat symptomatically.

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 sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microg/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:

- There is no specific antidote.

Dermal Management:

Remove any remaining contaminated clothing, place in double, sealed, clear bags and label; store in a secure area away from patients and staff.

Irrigate with copious amounts of water.

Eye Management:

Irrigate thoroughly with water or saline for 15 minutes. Stain with fluorescein and refer to an ophthalmologist if there is any uptake of stain.

Inhalation Management: Maintain a clear airway; give humidified oxygen and ventilate if necessary. If respiratory irritation occurs, assess respiratory function and, if necessary, perform chest X-rays to check for chemical pneumonitis.

for poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema .

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

continued...

FIRE FIGHTING

- Alert Fire Brigade 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.
- Use fire fighting procedures suitable for surrounding area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

FIRE/EXPLOSION HAZARD

- Non flammable liquid.
- However vapour will burn when in contact with high temperature flame.
- Ignition ceases on removal of flame.
- May form a flammable / explosive mixture in an oxygen enriched atmosphere.

Decomposition may produce toxic fumes of: carbon dioxide (CO₂), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

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

Personal Protective Equipment

Gloves, boots (chemical resistant).

Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by all means available, spillage from entering drains or water courses.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

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.

SUITABLE CONTAINER

- DO NOT use aluminium or galvanised containers.
- Glass container is suitable for laboratory quantities.
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

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. <</>.

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Section 7 - HANDLING AND STORAGE

STORAGE INCOMPATIBILITY

■ Chloroform

- decomposes in the presence of excess water, high temperature, including hot surfaces, evolving phosgene and hydrogen chloride
- on contact with warm water may form hydrogen chloride
- decomposes at ordinary temperatures in sunlight, in the absence of air, and in the dark in the presence of air
- may form explosive materials when mixed with strong bases, alkali metals, lithium, sodium, potassium, sodium-potassium alloys; these may be heat-, friction-, and/or impact sensitive.

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 range 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 .

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.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- chloroform- D:
- tetramethylsilane:

CAS:865- 49- 6

CAS:75- 76- 3

PERSONAL PROTECTION



RESPIRATOR

Type AX Filter of sufficient capacity

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

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.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OTHER

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.
- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.
- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.
- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

ENGINEERING CONTROLS

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
- Work should be undertaken in an isolated system such as a "glove-box". Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
- Open-vessel systems are prohibited.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless liquid with a characteristic odour; does not mix with water.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	62	Solubility in water (g/L)	Immiscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Applicable
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Applicable
Autoignition Temp (°C)	982	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	1.5
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available
Material	Value		
CHLOROFORM- D:			
log Kow	1.97		

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

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

continued...

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

GHS Hazard Phrases

May cause drowsiness or dizziness.
 Harmful if swallowed.
 May be fatal if swallowed and enters airways.
 Causes skin irritation.
 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
 May damage fertility or the unborn child <state specific effect if known > <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
 May cause damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
 Causes serious eye irritation.

TOXICITY AND IRRITATION

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

■ The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.

TETRAMETHYLSILANE:

TETRAMETHYLSILANE:

■ No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
chloroform- D	HIGH		LOW	HIGH
tetramethylsilane	HIGH		LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.

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

- Reduction.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.

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Section 13 - DISPOSAL CONSIDERATIONS

- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC

HAZCHEM:

2Z

Land Transport UNDG:

Class or division: 6.1
UN No.: 1888
Shipping Name: CHLOROFORM

Subsidiary risk: None
UN packing group: III

Air Transport IATA:

ICAO/IATA Class: 6.1
UN/ID Number: 1888
Special provisions: None

ICAO/IATA Subrisk: None
Packing Group: III

Shipping Name: CHLOROFORM

Maritime Transport IMDG:

IMDG Class: 6.1
UN Number: 1888
EMS Number: F- A , S- A
Limited Quantities: 5 L
Shipping Name: CHLOROFORM

IMDG Subrisk: None
Packing Group: III
Special provisions: None

Section 15 - REGULATORY INFORMATION

REGULATIONS

Regulations for ingredients

tetramethylsilane (CAS: 75-76-3) is found on the following regulatory lists;

"International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for chloroform-D (CAS: , 865-49-6)

Section 16 - OTHER INFORMATION

ND

Substance
tetramethylsilane

CAS
75- 76- 3

Suggested codes
AUTOID~

continued...

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Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by using available literature 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.

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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