



MATERIAL SAFETY DATA SHEET

Version :02

PRODUCT NAME: ETHYL CHLORIDE SOLUTION IN TETRAHYDROFURAN **CAS Number:** 75-00-3**1. IDENTIFICATION:**

Product Code : 98957

Company Name : ADVENT CHEMBIO PRIVATE LIMITED

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2. HAZARDS IDENTIFICATION:**Hazard classification****Physical hazards**

Flammable liquids : Category 2

Health hazards

Skin irritation : Category 2

Acute toxicity, Oral : Category 4

Eye irritation : Category 2

Carcinogenicity : Category 2

**Specific target organ
toxicity - single exposure** : Category 3

Labels elements :

Hazard symbol :



Signal word : Danger

Hazard statement : Highly flammable liquid and vapor.
Toxic to aquatic life with long lasting effects.
: Suspected of causing cancer.
Causes skin irritation.
Causes serious eye irritation.

Precautionary statement

Prevention : Obtain special instructions before use.
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Do not handle until all safety precautions have been read and understood.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.



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Response	Keep container tightly closed. Ground/ bond container and receiving equipment. Use explosion-proof electrical/ ventilating/ lighting/ equipment. Use only non-sparking tools. Take precautionary measures against static discharge.
	: IF exposed or concerned: Get medical advice/ attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Storage	: Store in a dry & well-ventilated place. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Disposal	: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification	: Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

3. COMPOSITION/ INFORMATION ON INGREDIENTS:

Ingredient	CAS Number	Percent	Hazardous
Ethyl chloride solution in tetrahydrofuran	75-00-3	10-20%	Yes

Component	Classification	Concentration
Ethyl chloride CAS-No. 75-00-3	Flam. Gas 1; Press. Gas Liquefied gas; Carc. 2; Repr. 1B; Aquatic Chronic 3; H220, H280, H351, H360FD, H412	>= 10 - < 20 %
Tetrahydrofuran CAS-No. 109-99-9	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; Carc. 2; STOT SE 3; H225, H302, H319, H351, H336, H335 Concentration limits: >= 25 %: Eye Irrit. 2, H319; >= 25 %: STOT SE 3, H335;	>= 70 - < 90 %

4. FIRST AID MEASURES:

General information	: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion	: Call a physician or poison control center immediately. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation	: Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms persist.
Skin contact	: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.



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Eye contact	:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Most important symptoms/effects, acute and delayed	:	Toxic if inhaled. Toxic if swallowed. Toxic in contact with skin. Irritating to eyes, respiratory system and skin.
Indication of immediate medical attention and special treatment needed	:	Symptoms may be delayed. Treat symptomatically.

5. FIRE FIGHTING MEASURES:

General information : Flammable liquid and vapor.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam, dry powder or carbon dioxide.

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

Specific hazards arising from the chemical : Carbon oxides
Hydrogen chloride gas
Combustible.
Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

Special protective equipment and precautions for firefighters

Special firefighting procedures : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. ACCIDENTAL RELEASE MEASURES:

Personal precautions, protective equipment and emergency procedures : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid breathing mists or vapors. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.

Methods and material for containment and cleaning up : Eliminate all ignition sources if safe to do so. Use only non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.



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Precautions for safe handling	Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/ face protection. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage stability	: Recommended storage temperature is 2 - 8 °C
Storage class	: Storage class 3: Flammable liquids

8. EXPOSURE CONTROLS PERSONAL PROTECTION:**Control parameters****Appropriate engineering**

controls : No data available

Individual protection measures, such as personal protective equipment

General information	: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.
Eye/face protection	: Wear safety glasses with side shields (or goggles).
Hand protection	: Chemical resistant gloves.
Other	: Wear suitable protective clothing.
Respiratory protection	In case of inadequate ventilation use suitable respirator. : Chemical respirator with organic vapor cartridge.
Hygiene measures	: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance : A Colourless liquid



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Odor	: No information found.
Solubility	: No information found.
Formula	: C ₂ H ₅ Cl
Molecular Weight	: 64.51 g/mol
Density	: 0.830-0.870 g/ml at 25°C
pH	: No information found.
% Volatiles by volume @ 21C (70F)	: No information found.
Boiling Point	: No information found.
Melting Point	: No information found.
Flash Point	: -17 °C
Vapor Density (Air=1)	: No information found.
Vapor Pressure (mm Hg)	: No information found.
Evaporation Rate (BuAc=1)	: No information found.

10. STABILITY AND REACTIVITY:

Reactivity	: Vapors may form explosive mixture with air.
Chemical stability	: Recommended storage temperature is 2 - 8 °C
Possibility of hazardous reactions	: No data available
Conditions to avoid	: Warming.
Incompatible materials	: No data available
Hazardous decomposition products	: In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION:**Components****Ethyl chloride**

Oral Product	: No data available.
Inhalation Product	: LC 50 (Rat): > 19000 ppm - gas
Skin corrosion/irritation	: No data available.
Serious eye damage/eye irritation	: No data available.



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Respiratory or skin sensitization	:	No data available.
Germ cell mutagenicity	:	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Result: Positive results were obtained in some in vitro tests. Method: OECD Test Guideline 474 Species: Mouse - male and female - Red blood cells (erythrocytes) Result: negative
Carcinogenicity	:	Suspected of causing cancer.
Reproductive toxicity	:	May damage the unborn child. May damage fertility.
Specific target organ toxicity - single exposure	:	No data available
Specific target organ toxicity	:	No data available
Aspiration hazard	:	No data available
<u>Tetrahydrofuran</u>		
Oral Product	:	LD 50 (Rat): 1.650 mg/kg
Dermal Product	:	LD 50 (Rat): > 2.000mg/kg
Inhalation Product	:	LC 50 (Rat): > 14.7 mg/l
Skin corrosion/irritation	:	No skin irritation
Serious eye damage/eye irritation	:	Causes serious eye irritation.
Respiratory or skin sensitization	:	Negative
Germ cell mutagenicity	:	Test Type: Ames test Test system: S. typhimurium Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Result: negative Method: OECD Test Guideline 474 Species: Mouse - male and female - Red blood cells (erythrocytes) Result: negative
Carcinogenicity	:	Suspected of causing cancer.
Reproductive toxicity	:	No data available.



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Specific target organ toxicity - single exposure	:	Inhalation - May cause respiratory irritation. - Central nervous system Acute oral toxicity - Irritation of mucous membranes
Specific target organ toxicity	:	Repeated exposure
Aspiration hazard	:	No data available

12. ECOLOGICAL INFORMATION:**Ecotoxicity****Components****Ethyl chloride**

Toxicity to daphnia and other aquatic invertebrates	:	static test EC50 - Daphnia magna (Water flea) - 58 mg/l - 48 h.
Toxicity to algae	:	static test ErC50 - Desmodesmus subspicatus (green algae) - 118 mg/l - 72 h.
Toxicity to bacteria	:	static test EC10 - Pseudomonas putida - > 140 mg/l - 17 h.

Tetrahydrofuran

Toxicity to fish	:	Flow-through test LC50 - Pimephales promelas (fathead minnow) - 2.160 mg/l - 96 h.
Toxicity to daphnia and other aquatic invertebrates	:	static test EC50 - Daphnia magna (Water flea) - 3.485 mg/l - 48 h
Toxicity to fish(Chronic toxicity)	:	Flow-through test NOEC - Pimephales promelas (fathead minnow) - 216 mg/l - 33 d

Persistence and degradability

Biodegradation Product	:	No data available.
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BOD/COD ratio Product	:	No data available.
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Bioaccumulative potential

Bioconcentration factor (BCF) Product	:	No data available on bioaccumulation.
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Partition coefficient n-octanol / water (log Kow) Product	:	No data available.
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Mobility in soil	:	No data available.
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Other adverse effects	:	No data available.
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Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws. Disposal recommendations are based on uncontaminated material.

Contaminated packaging : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION:

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR/RID:	UN 1993	FLAMMABLE LIQUID, N.O.S. (Tetrahydrofuran, Ethyl chloride)	3	II	No
IMDG	UN 1993	FLAMMABLE LIQUID, N.O.S. (Tetrahydrofuran, Ethyl chloride)	3	II	No
IATA	UN 1993	FLAMMABLE LIQUID, N.O.S. (Tetrahydrofuran, Ethyl chloride)	3	II	No

15. REGULATORY INFORMATION:

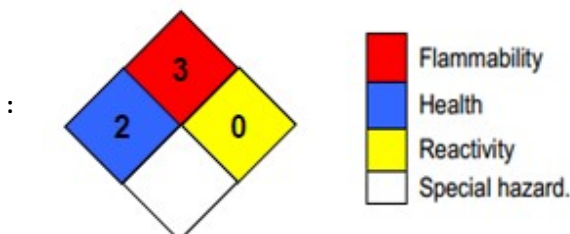
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

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NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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