

MATERIAL SAFETY DATA SHEET

Product Name: 1,4 –Dioxane

CAS No.: 123-91-1

Version: 0

1. Identification

Product Code : 90020, 90156, 90723, 90396,98152
Company Name : Advent Chembio Private Limited
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2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
1,4-DIOXANE	123-91-1	99- 100%

3. Hazards Identification**Hazard classification****Physical hazards**

Flammable liquids : Category 2

Health hazards

Serious eye damage/eye irritation : Category 2

Carcinogenicity : Category 2

Specific target organ toxicity - single exposure : Category 3

Specific target organ toxicity – repeated exposure : Category 2

Labels elements**Hazard symbol****Signal word** : Danger**Hazard statement** : Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.**Precautionary statement**

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- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. No smoking. 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. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling.
- Response** : In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. IF exposed or concerned: Get medical advice/attention. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. 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. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
- Storage** : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
- 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.

4. First Aid Measures

- General information** : Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor in attendance.
- Ingestion** : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting. .
- Inhalation** : Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.
- Skin contact** : Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention .
- Eye contact** : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.
- Most important symptoms/effects, acute and delayed** : Harmful if swallowed. Irritating to eyes, respiratory system and skin. Narcotic effect .

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Indication of immediate medical attention and special treatment needed : Treat symptomatically. Symptoms may be delayed.

5. Fire Fighting Measures

General fire hazards : Flammable liquid and vapor.
Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media : Avoid water in straight hose stream; will scatter and spread fire.
Specific hazards arising from the chemical : Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.

Special protective equipment and precautions for firefighters

Special fire fighting 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). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the MSDS for Personal Protective Equipment.

Methods and material for containment and cleaning up : Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use only non-sparking tools. 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.

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7. Handling and Storage

- Precautions for safe handling** : DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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. Use only with adequate ventilation. Wash hands thoroughly after handling.
- Conditions for safe storage, including any incompatibilities** : Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls Personal Protection

Control parameters

Occupational exposure limits

Chemical identity	Type	Exposure Limit values	Source
1-4-DIOXANE	TWA	20 ppm	US. ACGIH Threshold Limit Values (2011)
	Ceil-Time	12ppm 3.6 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	100 ppm 360 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	25ppm 90 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

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) and a face shield.

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Hand protection	:	Wear protective gloves .
Other	:	Wear suitable protective clothing.
Respiratory protection	:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn .
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 to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and Chemical Properties

Appearance	:	Colorless Liquid.
Odor	:	Slight .
Solubility in water	:	Miscible with water .
Relative density	:	1.03 (20 °C)
pH	:	No data available
Initial boiling point and boiling range	:	101 °C (101.325 kPa)
Melting point/freezing point:	:	11.8 °C
Vapor pressure	:	4.9 kPa (25 °C)
Vapor density:	:	3.03
Formula	:	C ₄ H ₈ O ₂
Molecular Weight	:	88.11 g/mol

10. Stability and Reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Heat, sparks, flames. Sunlight.
Incompatible materials	:	Strong oxidizing agents. Strong acids. Halogens. .
Hazardous decomposition products	:	Thermal decomposition may release oxides of carbon

11. Toxicological Information**Information on likely routes of exposure**

Ingestion	:	May be harmful if swallowed.
Inhalation	:	May cause irritation to the respiratory system. May cause drowsiness or dizziness .
Skin contact	:	Causes mild skin irritation.
Eye contact	:	Causes serious eye irritation.

Information on toxicological effects

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Acute toxicity (list all possible routes of exposure)

- Oral Product** : LD 50 (Rabbit): 2,000 mg/kg .
- Dermal Product** : LD 50 (Rabbit): 7,600 mg/kg
LD 50 (Rat): > 8,300 mg/kg
- Inhalation Product** : LC 50 (Rat, 2 h): 46 mg/l
LC 50 (Mouse, 2 h): 37 mg/l
- Repeated dose toxicity Product** : No data available.
- Skin corrosion/irritation Product** : Causes mild skin irritation.
- Serious eye damage/eye irritation Product** : Causes serious eye irritation.
- Respiratory or skin sensitization Product** : Not a skin sensitizer.
- Carcinogenicity Product** : Suspected of causing cancer .
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans DIOXANE** : Overall evaluation: 2B. Possibly carcinogenic to humans.
- US. National Toxicology Program (NTP) Report on Carcinogens DIOXANE** : Reasonably Anticipated to be a Human Carcinogen
- US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050** : No carcinogenic components identified.
- Germ cell mutagenicity**
- In vitro Product** : No mutagenic components identified.
- In vivo Product** : No mutagenic components identified.
- Reproductive toxicity Product** : No components toxic to reproduction .
- Specific target organ toxicity - single exposure Product** : Inhalation - vapor: Narcotic effect. Respiratory tract irritation.
- Specific target organ toxicity - repeated exposure Product** : Liver, Kidney, Central nervous system. - May cause damage to organs through prolonged or repeated exposure .
- Aspiration hazard Product** : Not classified.
- Other effects** : None known.

12. Ecological Information

Ecotoxicity

Acute hazards to the aquatic environment :

- Fish Product** : No data available.
- Specified substance(s): DIOXANE** LC 50 (Fathead minnow (Pimephales promelas), 96 h): 9,851 mg/l Mortality
LC 50 (Carp (Leuciscus idus melanotus), 48 h): 8,450 mg/l Mortality
EC 50 (Bluegill (Lepomis macrochirus), 48 h): 3,494 - 5,215 mg/l Mortality .
- Specified substance(s): DIOXANE** LC 50 (Water flea (Daphnia magna), 24 h): 4,700 mg/l Mortality
LC 50 (Scud (Gammarus pseudolimnaeus), 96 h): 1,800 - 2,872 mg/l Mortality .

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Aquatic invertebrates Product : No data available.

Chronic hazards to the aquatic environment :

Fish Product : No data available.

Aquatic invertebrates Product : No data available.

Toxicity to Aquatic Plants Product: : No data available.

Persistence and degradability

Biodegradation Product : The product is not readily biodegradable.

BOD/COD ratio Product : No data available.

Bioaccumulative potential

Bioconcentration factor (BCF) Product : No data available on bioaccumulation.

Product

Partition coefficient n-octanol / water (log Kow) Product : Log Kow: -0.27

Mobility in soil

: The product is water soluble and may spread in water systems.

Other adverse effects : No data available.

13. Disposal consideration

Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws. 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 .

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
DOT	UN 1165	Dioxane	3	II	No
IMDG	UN 1165	Dioxane	3	II	No
IATA	UN 1165	Dioxane	3	II	No

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

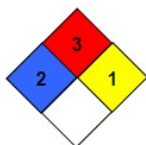
Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

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16. Other Information***NFPA Hazard ID***

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

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