
1. PRODUCT AND COMPANY IDENTIFICATION

Product name	1,4-Dioxane
Synonyms	Dioxane, Diethylene oxide
Grade	ACS, HPLC, HPLC-prep, LCMS, Pesticide, Dehydrous, Anapremium, UPLC
Company	Anaqua Chemicals Supply
	1510 Eldridge Parkway, Suite 110-268 Houston, TX 77077, USA
Telephone	(281) 668-0032
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2. COMPOSITION/ INFORMATION ON INGREDIENTS

Formula	C ₄ H ₈ O ₂
CAS-No.	123-91-1
Index-No.	603-024-00-5
Ec-No.	204-661-8
Concentration	> 99 %

3. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquid	Category 2
Carcinogenicity	Category 2
Eye irritation	Category 2
Specific target organ toxicity- single exposure	Category 3

According to European Directive 67/548/EEC as amended.

Highly flammable. May form explosive peroxides. Limited evidence of a carcinogenic effect. Irritating to eyes and respiratory system. Repeated exposure may cause skin dryness or cracking.

4. FIRST AID MEASURES

Inhalation	If breathed in, move to fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Rinse mouth with water. Consult a physician immediately.
Skin Contact	Immediately wash off with plenty of water for at least 15 minutes. Consult a physician.
Eye Contact	Rinse through with plenty of water for at least 15 minutes. Consult a physician.
Note to Physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.
Special protective equipment for fire-fighters	Wear self contained breathing apparatus for fighting if necessary. Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	Do not release into drains.
Methods for cleaning up	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent electrostatic charge build up.
Storage	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational exposure controls

Engineering Measures	Ensure that eye washer and emergency showers are close to the work place. Ensure adequate ventilation. Work under hood.
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Personal protective Equipment

Respiratory protection	Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
Hand protection	Wear appropriate protective gloves.
Eye protection	Face shield and tightly fitting safety glasses.
Skin and body protection	Protective clothes should be selected specifically for the work place according to concentration and quantity of the chemical handled.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands and face before breaks and at the end of working day.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Color	Colorless

pH	6 - 8 at 500 g/l at 20 °C
Oxidizing properties	No data available
Melting point	10-12 °C
Boiling point	100-102 °C
Flash point	12 °C - closed cup
Ignition temperature	180 °C
Lower explosion limit	2 % (V)
Upper explosion limit	22 % (V)
Vapor pressure	36 hPa at 20.0 °C 53 hPa at 25,20 °C
Density	1.034 g/mL at 25 °C (77 °F)
Water solubility	Completely miscible
Partition coefficient: n-octanol/ water	log Pow: -0.27
Molecular weight	88.11

10. STABILITY AND REACTIVITY

Storage stability	Stable under recommended storage conditions
Conditions to avoid	Heat, flames and sparks.
Materials to avoid	Oxygen, oxidizing agents, halogens, reducing agents, perchlorates, trimethylaluminum
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity	LD50 Oral - rat - 4.200 mg/kg LC50 Inhalation - rat - 2 h - 46.000 mg/m ³ Remarks: Sense Organs and Special Senses (Nose, eye, ear, and taste):Eye:Other. LD50 Dermal - rabbit - 7.858 mg/kg
Skin irritation	Skin - Human - Remarks: Chronic exposure causes drying effect on the skin and eczema. Skin - rabbit - No skin irritation
Eye irritation	Eyes - rabbit - Eye irritation - 24 h
Carcinogenicity	This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies IARC: 2B - Group 2B: Possibly carcinogenic to humans (1,4-Dioxane)
Specific target organ toxicity - single exposure	May cause damage to organs.
Potential health effects	Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through. May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Eyes Causes eye irritation.

Symptoms of Exposure	Nausea, Vomiting, Weakness, Dizziness, Vertigo, Headache, Sweating, loss of appetite, Kidney injury may occur. Liver injury may occur.
Additional Information	RTECS: JG8225000

12. ECOLOGICAL INFORMATION

Persistence and degradability	Biodegradability Result: < 5 % - Not readily biodegradable
Ecotoxicity	
Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 985 mg/l - 96 h
Toxicity to daphnia and aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8.450 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h
Bioaccumulative potential	Does not bioaccumulate.
Mobility in soil	No available information
PBT and vPvB assessment	No available information
Other adverse effects	No available information

13. DISPOSAL CONSIDERATIONS

Product	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.
Packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

IATA	
UN-Number: 1165 Class: 3	Packing group: II
Proper shipping name: Dioxane	

IMDG	
UN-Number: 1165 Class: 3	Packing group: II
Proper shipping name: Dioxane	
EMS-No. F-E, S-D	

DOT (US)	
UN-Number: 1165 Class: 3	Packing group: II
Proper shipping name: Dioxane	
Marine pollution: No	

15. REGULATORY INFORMATION

Hazard statements

H225: Highly flammable liquid and vapour.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H351: Suspected of causing cancer.

EUH019: May form explosive peroxides.

EUH066: Repeated exposure may cause skin dryness or cracking.

Precautionary statements

P210: Keep away from heat/spark/open flames/hot surface.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P281: Use personal protective equipment as required.

P305 + P351+ P338: If in eyes: Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P307 + P311: If exposed: Call a poison center or doctor/ physician.

GHS-Labeling

Pictogram



Signal word *Danger*

Labeling according to EC Directive

Symbol(s): Xn- Harmful F- Highly flammable

R-phrases(s): 11-19-36/37-40-66

Highly flammable. May form explosive peroxides. Irritating to eyes and respiratory system. Limited evidence of a carcinogenic effect.

Repeated exposure may cause skin dryness or cracking.

S-phrases(s): 9-16-36/37-46

Keep container in a well-ventilated place. Keep away from sources of ignition - No smoking. Wear suitable protective clothing and gloves. If swallowed, seek medical advice immediately and show this container or label.

16. OTHER INFORMATION

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