

1,4-Dioxane**087-4**

Version 1.2 2

Revision Date 01/15/2019

Print Date 06/28/2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1,4-Dioxane

SDS Number : 000000011218

Product Use Description : Solvent

Manufacturer or supplier's details : CHEM-SUPPLY Pty Ltd
38-50 Bedford St.
Gillman SA 5013, Australia

For more information call : +61 8 8440 2000
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
:
: **CHEMTREC in Australia: +(61)-290372994**
: (24 hours/day, 7 days/week)

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture**

Classification of the substance or mixture : Flammable liquids, Category 2
Eye irritation, Category 2A
Carcinogenicity, Category 2
Specific target organ toxicity - single exposure, Category 3, respiratory tract irritation

GHS Label elements, including precautionary statements

Symbol(s) : 

Signal word : Danger

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Hazard statements : Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause respiratory irritation.
Suspected of causing cancer.

Precautionary statements : **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.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

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

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

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3. COMPOSITION/INFORMATION ON INGREDIENTSFormula : C₄H₈O₂

Chemical nature : Substance

CAS-No. : 123-91-1

Hazardous components

Chemical name	CAS-No.	Concentration
1,4-Dioxane	123-91-1	<= 100%

4. FIRST AID MEASURES

Inhalation : Remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Use oxygen as required, provided a qualified operator is present.
Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Take off contaminated clothing and shoes immediately.
Wash contaminated clothing before re-use.
Call a physician.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician.

Ingestion : Do not induce vomiting without medical advice.
Never give anything by mouth to an unconscious person.
Call a physician.

Notes to physician : Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
Cool closed containers exposed to fire with water spray.

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Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : Highly flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
May form explosive peroxides.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.
Further information : HAZCHEM Code: 2YE

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.

Methods for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

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7. HANDLING AND STORAGE**Handling**

Advice on safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : May form explosive peroxides.
Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
Use explosion-proof equipment.
Keep product and empty container away from heat and sources of ignition.
No sparking tools should be used.
No smoking.

Storage

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids.
Protect from physical damage.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Protect from exposure to air/oxygen (peroxide formation).
Protect against light.
Store away from incompatible substances.
Container hazardous when empty.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : Oxidizing agents, Reducing agents, Acids, Bases, Oxygen, Halogens, Decaborane, Triethynyl aluminum, Plastic materials can be attacked.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

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Components	CAS-No.	Value	Control parameters	Update	Basis
1,4 Dioxane	123-91-1	TWA : Time Weighted Average (TWA):	10 ppm 36 mg/m3	12 2011	AU NOEL: Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)
		SKIN_DES : Skin designation:	Can be absorbed through the skin.	12 2011	AU NOEL: Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)
		TWA : Time Weighted Average (TWA):	10 ppm 36 mg/m3	08 2005	AU OEL: Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)
		SKIN_DES : Skin designation:	Can be absorbed through the skin.	08 2005	AU OEL: Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

Engineering measures

Use with local exhaust ventilation.

Prevent vapour buildup by providing adequate ventilation during and after use.

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Use NIOSH approved respiratory protection.

Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.

Eye protection : Do not wear contact lenses.

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	Wear as appropriate: Safety glasses with side-shields If splashes are likely to occur, wear: Goggles or face shield, giving complete protection to eyes
Skin and body protection	: Wear as appropriate: Solvent-resistant apron Flame retardant antistatic protective clothing. If splashes are likely to occur, wear: Protective suit
Hygiene measures	: When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Keep working clothes separately. Remove and wash contaminated clothing before re-use. Do not swallow. Avoid breathing vapours, mist or gas. Avoid contact with skin, eyes and clothing.
Protective measures	: Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Colour	: colourless
Odour	: ether-like
pH	: Note: no data available
Melting point/range	: 11.8 °C
Boiling point/boiling range	: 101.32 °C
Flash point	: 54 °F (12 °C) Method: closed cup
Lower explosion limit	: 2 %(V)

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Upper explosion limit	:	22 %(V)
Vapour pressure	:	39 hPa
Vapour density	:	3.0 Note: (Air = 1.0)
Density	:	1.0336 g/cm ³ at 20 °C 1.0280 g/cm ³ at 25 °C
Water solubility	:	Note: soluble
Ignition temperature	:	180 °C
Decomposition temperature	:	Note: No decomposition if used as directed.
Molecular weight	:	88.11 g/mol

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks. Keep away from direct sunlight. Protect from exposure to air/oxygen (peroxide formation).
Incompatible materials to avoid	:	Oxidizing agents Reducing agents Acids Bases Oxygen Halogens

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Hazardous decomposition products : Decarborane
Triethynyl aluminum
Plastic materials can be attacked.

: May form explosive peroxides.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50: 5,345 mg/kg
Species: Rat

Acute inhalation toxicity : LC50: 46 g/m³ , vapour
Exposure time: 2 h
Species: Rat

Acute dermal toxicity : LD50: 7,600 mg/kg
Species: Rabbit

Skin irritation : Species: Rabbit
Result: slight irritation

Eye irritation : Species: Rabbit
Result: Irritating to eyes.

Sensitisation
1,4 Dioxane : Maximisation Test
Species: Guinea pig
Result: Did not cause sensitisation on laboratory animals.
Method: EEC 92/69, B.6

Genotoxicity in vitro
1,4 Dioxane : Note: In vitro tests did not show mutagenic effects

Genotoxicity in vivo

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1,4 Dioxane : Test Method: dominant lethal test
Species: Mouse, male
Result: negative

Further information : Note: Confirmed animal carcinogen with unknown relevance to humans.

12. Ecological information**Toxicity**

Toxicity to fish : static test
NOEC: 6,000 mg/l
Species: Pimephales promelas (fathead minnow)

: static test
LC50: 10,000 mg/l
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates : EC50: > 1,000 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae : EC50: > 1,000 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Method: OECD Test Guideline 201

Other adverse effects

Additional ecological information : The product evaporates readily.
This chemical is known to leach through soil into ground water under certain conditions.

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13. DISPOSAL CONSIDERATIONS

Product : In accordance with local and national regulations.

14. TRANSPORT INFORMATION**ADR**

UN/ID No. : UN 1165
Description of the goods : DIOXANE
Class : 3
Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3

ADG_ROAD

UN/ID No. : UN 1165
Description of the goods : DIOXANE
Class : 3
Packing group : II
Hazard Identification Number : 33
Labels : 3

IATA

UN/ID No. : UN 1165
Description of the goods : Dioxane
Class : 3
Packing group : II
Labels : 3
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353
Packing instruction (passenger aircraft) : Y341

IMDG

UN/ID No. : UN 1165
Description of the goods : DIOXANE
Class : 3
Packing group : II
Labels : 3
EmS Number 1 : F-E
EmS Number 2 : S-D

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Marine pollutant : no

HAZCHEM Code: 2YE

15. REGULATORY INFORMATION**National regulatory information**Standard for the Uniform : Schedule 6
Scheduling of Medicines and
Poisons**Other international regulations****Notification status**US. Toxic Substances : On TSCA Inventory
Control ActAustralia. Industrial Chemical : On the inventory, or in compliance with the inventory
(Notification and
Assessment) ActCanada. Canadian : All components of this product are on the Canadian DSL
Environmental Protection Act
(CEPA). Domestic
Substances List (DSL)

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals : On the inventory, or in compliance with the inventory
Inventory (KECI)Philippines. The Toxic : On the inventory, or in compliance with the inventory
Substances and Hazardous
and Nuclear Waste Control
ActChina. Inventory of Existing : On the inventory, or in compliance with the inventory
Chemical SubstancesNew Zealand. Inventory of : On the inventory, or in compliance with the inventory
Chemicals (NZIoC), as
published by ERMA New
Zealand

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16. OTHER INFORMATION**Sources of key data used to compile the Safety Data Sheet:**

1. National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC:2011(2003)]
2. Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1999)]
3. List of Designated Hazardous Substances [NOHSC:10005(1999)]
4. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]
5. Australian Dangerous Goods Code, No. 6 [National Road Transport Commission]
6. Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP), No. 19 [NDPSC: 2004]
7. National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]

Further information

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.

Final determination of suitability of any material is the sole responsibility of the user.

This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Prepared by:
Honeywell Performance Materials and Technologies Product Stewardship Group

End of Safety Data Sheet