

SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.1
Prepared on : 30.03.2019
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SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name 1,4-Dioxane
Product Number PSR28289
Brand PureSynth research chemicals
CAS No. 123-91-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : PurCert standard

1.3 Details of the supplier of the safety data sheet

Company PureSynth Research Chemicals Pvt. Ltd.
64683 Einhausen Marie-Curie-StraBe. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Eye irritation (Category 2), H319

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor

H319 Causes serious eye irritation.

H335	May cause respiratory irritation.
H351	Suspected of causing cancer.

Precautionary statement(s)

P202	Do not handle until all safety precautions have been read and Understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and Other ignition sources. No smoking.
P233	Avoid release to the environment.
P240	Ground and bond container and receiving equipment.
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.
Supplemental Hazard Statements	None
EUH019	May form explosive peroxides.
EUH066	Repeated exposure may cause skin dryness or cracking.

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), Or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
Dioxane Diethylene oxide	C ₄ H ₈ O ₂	123-91-1
Component	Classification	Concentration
1,4-Dioxane	Flam. Liq. 2; Eye Irrit. 2; Carc. 2; STOT SE 3; H225, H319, H351, H335 Concentration limits: >= 20 %: STOT SE 3, H335;	<= 100 %

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Call in physician.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses

If swallowed	After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media	Water Foam Carbon dioxide (CO ₂) Dry powder
Suitable extinguishing media	Carbon oxides Combustible.
Special hazards arising from the substance or mixture	Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapors possible in the event of fire Forms explosive mixtures with air at ambient temperatures.
Advice for fire-fighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, and consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Immediately change contaminated clothing. Apply preventive skin
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protection. Wash hands and face after working with substance.
For precautions see section 2.2.

**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. Test for peroxide formation periodically and before distillation.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters

No data available.

Exposure controls

Appropriate engineering controls

No data available.

Personal protective equipment:

Eye / face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin protection

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Control of environmental
exposure**

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid
	Colour: Colourless
Odour	No data available
pH - Value	6.0 - 8 at 500 g/l at 20 °C
Density	1,034 g/cm ³ at 25 °C - lit.
Boiling Point	100 - 102 °C - lit.
Melting Point	10 - 12 °C - lit.
Solubility in water	1.000 g/l at 20 °C - completely miscible
Flash point	11 °C - closed cup
Vapour pressure	36 hPa at 20 °C 53 hPa at 25,20 °C
Auto-ignition temperature	190,55 °C
Vapour density	3,04 - (Air = 1.0)
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	log Pow: -0,42 - Bioaccumulation is not expected
	Viscosity, kinematic: 1,27 mm ² /s at 20 °C - OECD Test
Viscosity	Guideline 1140,93 mm ² /s at 40 °C - OECD Test Guideline 114 Viscosity, dynamic: 1,2 mPa.s at 25 °C 1,32 mPa.s at 20 °C
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 22 %(V) Lower explosion limit: 2 %(V)
Oxidizing properties	No data available

Other safety information: No data available

Surface tension 36.9 mN/m at 25 °C

Relative vapour density 3, 04 - (Air = 1)

SECTION 10: Stability and reactivity

Reactivity	Formation of peroxides possible. Vapours may form explosive mixture with air The product is chemically stable under standard ambient conditions (room temperature).
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No data available
Condition to avoid	Warming. Moisture.
Incompatible materials	various plastics, copper compounds
Hazardous decomposition products	Peroxides In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - male and female - 5.150 mg/kg (OECD Test Guideline 401) Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Lung edema
	LD50 Dermal - Rabbit - 7.378 mg/kg Remarks: (RTECS)
	Skin - Rabbit
Skin corrosion/irritation	Result: No skin irritation - 20 h Remarks: (IUCLID) Eyes - Rabbit
Serious eye damage/eye irritation	Result: Eye irritation (OECD Test Guideline 405) (Regulation (EC) No 1272/2008, Annex VI)
Respiratory or skin sensitization	Maximization Test - Guinea pig Result: negative (Regulation (EC) No. 440/2008, Annex, B.6) Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476
Germ cell mutagenicity	Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: dominant lethal test Species: Mouse Application Route: Intraperitoneal injection Result: negative Remarks: (ECHA)
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	May cause respiratory irritation. - Respiratory system Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Specific target organ toxicity - repeated exposure	No data available
Additional Information	
Endocrine disrupting properties	Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU)
Product:	

2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male - Oral - 716 Days - NOAEL (No observed adverse effect

level) - 9,6 mg/kg

Remarks: (ECHA) RTECS: JG8225000

Nausea, Vomiting, Weakness, Dizziness, Vertigo, Headache, Sweating, loss of appetite,

Kidney injury may occur. Liver injury may occur.

To the best of our knowledge, the chemical, physical, and toxicological properties have not

Been thoroughly investigated.

The substance has delayed effects.

After absorption:

Headache

Dizziness

Nausea

Vomiting

Absorption can result in damage to:

Liver

Kidney

Other dangerous properties cannot be excluded.

This substance should be handled with particular care.

SECTION 12: Ecological information

Toxicity

Toxicity to daphnia and other aquatic invertebrates

semi-static test EC50 - Daphnia magna (Water flea) - > 1.000 mg/l - 48 h

(OECD Test Guideline 202)

Toxicity to algae

static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 1.000 mg/l - 72 h

(OECD Test Guideline 201)

aerobic - Exposure time 29 d

Persistence and degradability

Result: < 10 % - Not readily biodegradable.

(OECD Test Guideline 301F)

Cyprinus carpio (Carp) - 10 mg/l(1,4-Dioxane)

Bio accumulative potential

Bio concentration factor (BCF): 0,3 - 0,7

(OECD Test Guideline 305C)

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at Levels of 0.1% or higher.

Endocrine disrupting properties

Assessment : : The substance/mixture does not contain components considered to have endocrine disrupting properties

Product

according to REACH Article 57(f) or Commission

Delegated regulation (EU) 2017/2100 or Commission

Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other adverse effects

Forms toxic mixtures in water, dilution measures notwithstanding.

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

Waste treatment methods Products

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleansed containers like the product itself.

Contaminated packaging Dispose of as unused product.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	1165	DIOXANE	3	II	No
IMDG	1165	DIOXANE	3	II	No
IATA	1165	Dioxane	3	II	No

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

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

Authorisations and/or restrictions on use

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): 1,4-Dioxane

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous Substances. : FLAMMABLE LIQUIDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or Stricter national regulations where applicable.
Take note of Dir 94/33/EC on the protection of young people at work.

Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.