SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

1,4-Dioxane, 250 ml

CAS No:	123-91-1
Index No:	603-024-00-5
EC No:	204-661-8

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

Use of the substance/mixture

Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

Seller

Company name:	CONATEX-DIDACTIC Lehrmittel GmbH
Street:	Im Forstgarten 1
Place:	D-66459 Kirkel
Internet:	www.conatex.com

Supplier

Company name:	Carbolution Chemicals GmbH	
Street:	Im Stadtwald, Gebäude A1.2	
Place:	D-66123 Saarbrücken	
Contact person:	Dr. Michael Bauer	Telephone: +49 (0)681 302-71232
e-mail:	michael.bauer@carbolution-chemicals.de	
Internet:	www.carbolution-chemicals.de	

1.4. Emergency telephone number:

+49 (0)681 302-71232

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC

Indications of danger: F - Highly flammable, C3 - Carc. Cat. 3, Xi - Irritant
R phrases:
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.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazard categories:
Flammable liquid: Flam. Liq. 2
Carcinogenicity: Carc. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Highly flammable liquid and vapour.
Suspected of causing cancer.
Causes serious eye irritation.
May cause respiratory irritation.

2.2. Label elements

Hazardous components which must be listed on the label

1,4-dioxane

Signal word: Danger

Pictograms: GHS02-GHS07-GHS08

Hazard statements

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C4H8O2

Molecular weight: 88,11

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification according to Directive 67/548/EEC	
Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	
204-661-8	1,4-dioxane	100 %
123-91-1	Carc. Cat. 3, F - Highly flammable, Xi - Irritant R11-19-40-36/37-66	
603-024-00-5	Flam. Liq. 2, Carc. 2, Eye Irrit. 2, STOT SE 3; H225 H351 H319 H335 EUH019 EUH066	

Full text of R-, H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

After inhalation

Provide fresh air. Medical treatment necessary.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time , then consult an ophthalmologist immediately.

After ingestion

Rinse mouth immediately and drink plenty of water.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray jet, Carbon dioxide (CO2), Foam, Extinguishing powder.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapours can form explosive mixtures with air.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Danger of explosion

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Advice on protection against fire and explosion

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on storage compatibility

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

Further information on storage conditions

Store in a cool dry place.

7.3. Specific end use(s)

none

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
123-91-1	1,4-Dioxane	20	73		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary . When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
Colour: colourless

		Test method
pH-Value:	7	
Changes in the physical state		
Melting point:	10 °C	
Initial boiling point and boiling range:	100 °C	
Flash point:	12 °C	
Flammability		
Solid:	not applicable	
Gas:	not applicable	
Lower explosion limits:	2 vol. %	
Upper explosion limits:	22 vol. %	

Auto-ignition temperature

Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined

Oxidizing properties

Not oxidizing.

Vapour pressure: (at 20 °C)	36 hPa
Vapour pressure: (at 25,2 °C)	53 hPa
Density:	1,034 g/cm³
Water solubility:	easily soluble

Solubility in other solvents

not determined

Partition coefficient:	-0,27
Vapour density:	not determined
Evaporation rate:	not determined

9.2. Other information

Solid content:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable, Ignition hazard.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
123-91-1	1,4-dioxane				
	oral	LD50	5200 mg/kg	Ratte	
	dermal	LD50	7378 mg/kg	Kaninchen	
	inhalative (4 h) vapour	LC50 mg/l	48,5 - 54,3	Ratte	

Additional information on tests

This mixture is classified as hazardous according to 1999/45/EC.

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	[h] | [d]	Species	Source
123-91-1	1,4-dioxane					
	Acute fish toxicity	LC50 mg/l	9850 - 10800	96 h	Pimephales promelas	

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
123-91-1	1,4-dioxane	-0,42

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.6. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 1165
14.2. UN proper shipping name:	DIOXANE
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L
Transport category:	2
Hazard No:	33
Tunnel restriction code:	D/E

Other applicable information (land transport)

E2

Inland waterways transport (ADN)

14.1. UN number:	UN 1165
14.2. UN proper shipping name:	DIOXANE
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L

Other applicable information (inland waterways transport)

E2

Marine transport (IMDG)

14.1. UN number:	UN 1165
14.2. UN proper shipping name:	DIOXANE
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3
Special Provisions:	-
Limited quantity:	1 L
EmS:	F-E, S-D

Other applicable information (marine transport)

E2

Air transport (ICAO)

14.1. UN number:	UN 1165
14.2. UN proper shipping name:	DIOXANE
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3
Limited quantity Passenger:	1 L
IATA-packing instructions - Passenger:	353
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	364
IATA-max. quantity - Cargo:	60 L

Other applicable information (air transport)

E2

: Y341

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

2004/42/EC (VOC): 100 %

Additional information

To follow: 850/2004/EC , 79/117/EEC , 689/2008/EC

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

Water contaminating class (D): 2 - water contaminating

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Relevant R-phrases (Number and full text)

11	Highly flammable.
19	May form explosive peroxides.
36/37	Irritating to eyes and respiratory system.
40	Limited evidence of a carcinogenic effect.
66	Repeated exposure may cause skin dryness or cracking.

Relevant H- and EUH-phrases (Number and full text)

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.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.