

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 1 of 10

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

1.1. Product identifier

TwinOxide 0.3% solution

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

Use of the substance/mixture

biocides (Group PT2, PT3, PT4, PT5, PT11, PT12, PT20)
Oxidizing agents.

Uses advised against

biocides (Group PT1, PT6, PT7, PT8, PT9, PT10, PT13, PT14, PT15, PT16, PT17, PT18, PT19, PT21, PT22)

1.3. Details of the supplier of the safety data sheet

Company name: TwinOxide International B.V.
Street: De Tongelreep 17
Place: NL-5684 PZ Best
Telephone: +31 499 32 92 42
e-mail: info@twinoxide.com
Internet: www.twinoxide.com/

USA / Canada Importer/Distributor

TwinOxide-USA Inc.
3700 N. Courtenay Pkwy. Ste. 112
Merritt Island, Florida 32953
321-207-8524
info@twinoxide.us
www.twinoxide.us

1.4. Emergency telephone number:

Poison Control
1-800-222-1222
Available 24 hours a day

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Serious eye damage/eye irritation: Eye Irrit. 2
Hazard Statements:
Causes serious eye irritation.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

Chlorine dioxide 0.3 %

Signal word: Warning

Pictograms:



Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

To follow:
Above the solution a gas phase is formed with chlorine dioxide, which has the following hazards:
H330 Fatal if inhaled.

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 2 of 10

H319 Causes serious eye irritation.
H315 Causes skin irritation.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic organisms.
EUH018 In use may form flammable/explosive vapour-air mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name	Quantity		
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
10049-04-4	Chlorine dioxide			0.3 %
	233-162-8	017-026-01-0		
	Acute Tox. 3 (oral), Skin Corr. 1B, STOT SE 3, Aquatic Acute 1 (M-Factor = 10); H301 H314 H335 H400			

Full text of H statements: see section 16.

Further Information

The product is made of TwinOxide component A and component B.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

If victim is at risk of losing consciousness, position and transport on their side.
First aider: Pay attention to self-protection!
Symptoms of poisoning may develop several hours following exposure. Victim should be under medical observation for at least 48 hours after exposure.
Remove affected person from the danger area and lay down.
In case of breathing difficulties administer oxygen.

After inhalation

Remove casualty to fresh air and keep warm and at rest. Call a physician immediately. In case of irregular breathing or respiratory arrest provide artificial respiration.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off contaminated clothing and wash it before reuse. In case of skin irritation, seek medical treatment.

After contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps. Do NOT induce vomiting. Call a physician immediately.

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

Impairment of vision. unconsciousness. Coughing. shortage of breath. Headache. Nausea. Dizziness. gastro-intestinal ailment.

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

Treat symptomatically.
Subsequent observance for pneumonia and lung oedema. Treat skin and mucous membrane with antihistamines and corticosteroid preparations. Gastric lavage after giving liquid paraffin with added animal charcoal. To supervise the blood circulation.

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 3 of 10

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Foam. Dry extinguishing powder. Carbon dioxide (CO₂). Water spray.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Hydrogen chloride (HCl). Chlorine (Cl₂). Phosgene. dioxin.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus. Full protective suit.
In case of fire and/or explosion do not breathe fumes.

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**

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

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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**

Provide adequate ventilation.
If handled uncovered, arrangements with local exhaust ventilation have to be used. Transfer substance using encapsulated system, e.g. using a drum pump.
Provide adequate ventilation as well as local exhaustion at critical locations.
Handle and open container with care.

Advice on protection against fire and explosion

Non-combustible liquids
Chlorine dioxide solutions are explosive, with volume concentration > 10%.
When heated critical concentrations to be expected above the aqueous solution.
Usual measures for fire prevention.

Further information on handling

Use a closed dosage system.
Keep away from: Incompatible materials.

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 4 of 10

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store in a well-ventilated place. The floor should be leak tight, jointless and not absorbent. Keep/Store only in original container. Keep container tightly closed.

Advice on storage compatibility

Keep away from: acid. Alkalis (alkalis). Oxidizing agents, strong. Reducing agents.

Further information on storage conditions

Keep in a cool, well-ventilated place. Handle and open container with care.
Protect against direct sunlight. Keep away from heat.

7.3. Specific end use(s)

storage stability: at room temperature 2 - 4 weeks; cool and protected from light - more

Identified uses:

biocides (Group PT2, PT3, PT4, PT5, PT11, PT12, PT20)

Oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
10049-04-4	Chlorine dioxide	0.1	0.28		TWA (8 h)	WEL
		0.3	0.84		STEL (15 min)	WEL

8.2. Exposure controls



Protective and hygiene measures

Do not breathe vapour. Avoid contact with skin and eyes.

Remove contaminated, saturated clothing immediately. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink or smoke.

Eye/face protection

Eye glasses with side protection (DIN EN 166)

Hand protection

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.

Suitable material: NBR (Nitrile rubber). 0,11 mm

Breakthrough times and swelling properties of the material must be taken into consideration.

Protect skin by using skin protective cream.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Gas filtering equipment.

Environmental exposure controls

Do not allow to enter into surface water or drains.

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 5 of 10

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state: liquid
Colour: green - yellow
Odour: like: Chlorine

Test method

pH-Value: ~2

Changes in the physical state

Melting point: -2 °C Water
Initial boiling point and boiling range: ~102 °C Water

Flash point: not applicable

Flammability

Solid: not applicable
Gas: not applicable

Explosive properties

No data available

Lower explosion limits: not applicable

Upper explosion limits: not applicable

Ignition temperature: not applicable

Auto-ignition temperature

Solid: not applicable
Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties

No data available

Vapour pressure: not determined

Density: ~1.10 g/cm³

Water solubility: completely miscible

Solubility in other solvents

not determined

Partition coefficient: not applicable

Viscosity / dynamic: not determined

Viscosity / kinematic: not determined

Vapour density: not determined

Evaporation rate: not determined

Solvent separation test: not applicable

Solvent content: not applicable

9.2. Other information

Water content (%): > 95

Odour threshold: not determined

SECTION 10: Stability and reactivity

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 6 of 10

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

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

Heat (slow decomposition)

10.5. Incompatible materials

Acid. Oxidizing agents, strong. Reducing agents.

Reacts with: Metal

10.6. Hazardous decomposition products

Chlorine compounds.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
10049-04-4	Chlorine dioxide			
	oral	LD50 93.86 mg/kg b.w.	Rat	ECHA Reg.Dossier

Irritation and corrosivity

Irritant effect on the skin: not determined

Irritant effect on the eye: Causes serious eye irritation.

Sensitising effects

Skin sensitisation: not determined

Carcinogenic/mutagenic/toxic effects for reproduction

No information available.

STOT-single exposure

No information available.

STOT-repeated exposure

No information available.

Aspiration hazard

Based on available data, the classification criteria are not met.

Additional information on tests

This preparation is hazardous in the sense of regulation (EC) No 1272/2008 [GHS].

SECTION 12: Ecological information**12.1. Toxicity**

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 7 of 10

CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] [d]	Species	Source
10049-04-4	Chlorine dioxide				
	Acute fish toxicity	LC50	2.563 mg/l	96 h	Brachydanio rerio (zebra-fish)
	Fish toxicity	NOEC	2.063 mg/l	2 d	Brachydanio rerio (zebra-fish)
					DIN EN ISO 15088

12.2. Persistence and degradability

Inorganic product which is not eliminable from water through biological cleaning processes.

12.3. Bioaccumulative potential

Not relevant.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No information available.

Further information

Avoid release to the environment.

Product may not be released into waters without pre-treatment (biological sewage plant).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow full strength product to enter into surface water or drains, always flush with plenty of water. Dispose of waste according to applicable Federal, State and local legislation requirements.

Contaminated packaging

Wash with plenty of water. Completely emptied containers can be recycled or discarded as normal waste.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:

UN 3287

14.2. UN proper shipping name:

TOXIC LIQUID, INORGANIC, N.O.S. (Chlorine dioxide)

14.3. Transport hazard class(es):

6.1

14.4. Packing group:

II

Hazard label:

6.1



Classification code:

T4

Special Provisions:

274

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 8 of 10

Limited quantity: 100 mL
Transport category: 2
Hazard No: 60
Tunnel restriction code: D/E

Other applicable information (land transport)

Inland waterways transport (ADN)

14.1. UN number: UN 3287
14.2. UN proper shipping name: TOXIC LIQUID, INORGANIC, N.O.S. (Chlorine dioxide)
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1



Classification code: T4
Special Provisions: 274 802
Limited quantity: 100 mL

Other applicable information (inland waterways transport)

Marine transport (IMDG)

14.1. UN number: UN 3287
14.2. UN proper shipping name: TOXIC LIQUID, INORGANIC, N.O.S. (Chlorine dioxide)
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1



Special Provisions: 274
Limited quantity: 100 mL
EmS: F-A, S-A

Other applicable information (marine transport)

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 3287
14.2. UN proper shipping name: TOXIC LIQUID, INORGANIC, N.O.S. (Chlorine dioxide)
14.3. Transport hazard class(es): 6.1
14.4. Packing group: II
Hazard label: 6.1



Special Provisions: A3 A4 A137
Limited quantity Passenger: 1 L
IATA-packing instructions - Passenger: 654
IATA-max. quantity - Passenger: 5 L

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 9 of 10

IATA-packing instructions - Cargo: 662
IATA-max. quantity - Cargo: 60 L

Other applicable information (air transport)

EQ: E4
Passenger-LQ: Y641

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: yes



14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

Other applicable information

Transport classification: because of the dangers inherent in the gas phase.

SECTION 15: Regulatory information

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

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).
Water contaminating class (D): 1 - slightly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

section 2

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 H and EUH statements (number and full text)

H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our

Safety Data Sheet

according to Regulation (EC) No 1907/2006, incl. COMMISSION REGULATION (EU) 2015/830

TwinOxide 0.3% solution

Revision date: 13.02.2017

Page 10 of 10

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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)