

# SAFETY DATA SHEET

## Section 1: Identification

**Product Name:** TwinOxide 0.005% aqueous solution

**Chemical Name/Synonyms:**

**Company:** TwinOxide International B.V., De Tongelreep 17 NL-5684 PZ Best

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**TwinOxide is a biocide and oxidizing agent for water purification.**

**In emergency call 911.**

[www.twinoxide.com/](http://www.twinoxide.com/) GIZ Nord Tel.: +49 (0) 551 - 1 92 40

This number is only available during office hours.

USA Tel: 303-877-3684 Joe Nieusma, PhD toxicologist

## Section 2: Hazard(s) Identification

**Hazard Classification:** potential eye irritation

**Signal Word(s):** Warning

**Hazard Statements:** [Click here to enter text.](#)

**Pictograms:**

**Precautionary Statements:** Chlorine dioxide solution in concentrations of 0.005% or less is potentially irritating to the eyes. Chlorine dioxide is quickly broken down into other chlorine derivatives such as chlorate, chlorite and chloride.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present, continue rinsing.

If eye irritation persists: Get medical attention.

**Description of other hazards:** No other hazards are expected for the 0.005% or less solution of chlorine dioxide.

## Section 3: Composition/ Information on Ingredients

### Mixtures Hazardous components

CAS No	Chemical name	Quantity
10049-04-4	Chlorine dioxide	0.005 %

Potential for eye irritation.

This liquid product is made of TwinOxide component A and component B.

## Section 4: First-Aid Measures

### 1. Description of first aid measures General information

First aider: Pay attention to self-protection.

Symptoms of exposure may develop several hours following exposure.

Remove affected person to a well-ventilated area. Drink plenty of water.

If symptoms of exposure persist for several days, see a physician.

#### **After inhalation**

Remove person to fresh air if chlorine dioxide has been inhaled. Drink plenty of water.

#### **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.

**After ingestion**

Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting.

2. **Most important symptoms and effects, both acute and delayed**

Potential for eye irritation.

**Section 5: Fire-Fighting Measures**

1. **Extinguishing media** Suitable extinguishing media

Water is recommended since chlorine dioxide is soluble in water and the toxic effects are reduced on dilution. Foam. Dry extinguishing powder. Carbon dioxide (CO<sub>2</sub>).

2. **Advice for firefighters**

Wear self-contained breathing apparatus. Full protective suit. Use water spray jet to protect personnel and to cool endangered containers. Suppress gases / fumes with water spray jet.

**Section 6: Accidental Release Measures**

1. Provide adequate ventilation. No adverse effects of release expected. Avoid contact with eyes.

2. Environmental precautions

Chlorine dioxide at 0.005% is not an environmental hazard. Spills of chlorine dioxide solutions should be diluted to a low concentration using large volume of water. Rinse spills away to drain.

3. Methods and material for containment and cleaning up very large volume spills:

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

**Section 7: Handling and Storage**

**Advice on safe handling**

Store for use in closed containers. No adverse effects of handling 0.005% solution expected. Handle and open container with care.

**Advice on protection against fire and explosion**

Gaseous chlorine dioxide is emitted on heating. Chlorine dioxide solutions are not flammable or explosive at 0.005%. Usual measures for fire prevention.

**Further information on handling**

At the diluted use levels, it is noncorrosive.

1. **Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Store in closed container or well-ventilated area. 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.

2. **Specific end use(s)**

Storage stability: at room temperature at least 4 weeks; cool and protected from light stability is up to 9 to 12 months. More Identified uses: biocides and oxidizing agents.

**Section 8: Exposure Controls/Personal Protection**

Chemical Name	OSHA PEL	OSHA PEL (ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Chlorine dioxide	0.1 ppm	0.3 ppm	0.1 ppm	0.3 ppm

**Exposure controls protective and hygiene measures**

Do not eat, drink or smoke. Do not breathe vapor. Avoid contact with eyes.

**Eye/face protection**

Eyeglasses with side protection (DIN EN 166)

**Hand protection**

Hand protection is not required for 0.005% solution.

**Skin protection**

Skin protection is not required for 0.005% solution.

**Respiratory protection**

Respiratory protection is not required for 0.005% solution.

**Environmental exposure controls**

Environmental exposure protection is not required for 0.005% solution.

**Section 9: Physical and Chemical Properties**

**Form:** yellow liquid

**Odor:** slight to mild chlorine pool odor

**Odor threshold:** not determined

**pH:** ~2

**Melting point/melting range:** -2 °C Water

**Boiling point/boiling range:** ~102 °C Water

**Flash point:** not applicable

**Evaporation rate:** not determined

**Flammability:** not applicable

**Upper/lower flammability or explosive limits:** not applicable

**Auto ignition temperature:** not applicable

**Danger of explosion:** at very high levels of >12% in air

**Vapor pressure:** not determined

**Vapor density:** ~1.10 g/cm<sup>3</sup>

**Solubility in/Miscibility with water:** completely miscible

**Section 10: Stability and Reactivity****1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

**2. Chemical stability**

The product is stable under storage at normal ambient temperatures. Chlorine dioxide has higher solubility at colder temperatures enhancing stability.

**3. Possibility of hazardous reactions**

No known hazardous reactions.

**4. Conditions to avoid**

High heat (slow decomposition). Avoid direct sunlight.

**5. Incompatible materials**

Acid. Oxidizing agents, strong. Reducing agents. Corrosive to Metals and metal alloys. Non-corrosive to metals when diluted with water to concentrations less than 7 PPM.

**6. Hazardous decomposition products**

Chlorine compounds.

**Section 11: Toxicological Information**

**Acute toxicity:** Rat Oral LD50 93.86 mg/kg BW

**Potential routes of exposure/potential health effects**

**Skin:** skin protection is not required for 0.005% solution.

**Eye:** potential eye irritant.  
**Inhalation:** respiratory irritation not expected for 0.005% solution.  
**Ingestion:** mucous membrane irritation not expected for 0.005% solution.  
**Carcinogenic effects:** No information available  
**Mutagenic effects:** No information available  
**Reproductive toxicity:** No information available  
**Sensitization:** No information available  
**Target organs:** Eyes

#### Section 12: Ecological Information (non-mandatory)

1. Toxicity of concentrated chlorine dioxide  
CAS 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)
2. Persistence and degradability: Inorganic product which is not eliminable from water through biological cleaning processes.
3. Bioaccumulative potential: Not relevant.
4. Mobility in soil: The product has not been tested.
5. Results of PBT and vPvB assessment: The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
6. Other adverse effects: No expected adverse effects of 0.005% solution.

#### Section 13: Disposal Considerations (non-mandatory)

##### 13.1. Waste treatment methods

##### Waste disposal number of waste from residues/unused products

190899 WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTEWATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE; wastes from wastewater treatment plants not otherwise specified; wastes not otherwise specified

##### Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

#### Section 14: Transport Information (non-mandatory)

**DOT regulations:** no known restrictions

- **Hazard class:** no known restrictions

#### Section 15: Regulatory Information (non-mandatory)

##### US Federal Regulations

**SARA Section 355 (extremely hazardous substances):** no known restrictions

**SARA Section 313 (specific toxic chemical listings):** no known restrictions

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs):** no known restrictions

**TSCA (Toxic Substances Control Act):** no known restrictions

#### Section 16: Other Information

**SDS date of preparation/update:** 3/16/2020

**Written by Joe Nieuwsma, PhD toxicologist phone 303-877-3684**