TwinOxide North America

SAFETY DATA SHEET

Section 1: Identification

Product Name: TwinOxide 0.005% aqueous solution
Chemical Name/Synonyms:
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TwinOxide is a biocide and oxidizing agent for water purification.

In emergency call 911. Or 24/7 # 1-800-424-9300
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: slight potential eye irritation
Signal Word(s): Caution
Hazard Statements: No adverse effects from labeled usage expected
Pictograms: none required

Precautionary Statements: Chlorine dioxide solution in concentrations of 0.005% or less is possibly irritating to the eyes. It is quickly broken down into other chlorine derivatives such as chlorate, chlorite and chloride.
IF IN EYES: Rinse with water for a few 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

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. No adverse effects expected from 0.005% solution. 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
No adverse effects expected from 0.005% solution. Remove person to fresh air if chlorine dioxide has been inhaled. Drink plenty of water.

After contact with skin
No adverse effects expected from 0.005% solution. After contact with skin, wash immediately with plenty of water and soap. Eventually, take off contaminated clothing and wash it before reuse. In a rare case of skin irritation, seek medical treatment.

After contact with eyes
No adverse effects expected from 0.005% solution. In case of contact with eyes, rinse immediately with plenty of flowing water for a few minutes holding eyelids apart.

After ingestion
No adverse effects expected from 0.005% solution. Rinse mouth 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**
   Small potential for eye irritation.

Section 5: Fire-Fighting Measures

1. **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_2).
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. No chemical-specific hazards are expected from 0.005% TwinOxide in the event of a fire as product is >99% water.

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/cm³
Relative density: not determined
Patrician coefficient: n-octanol/water: not determined
Decomposition temperature: 180 degrees F
Solubility in/Miscibility with water: completely miscible
Viscosity: Not determined

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. Non-corrosive to metals when diluted with water. No corrosive initiation or propagation of existing corrosion expected at concentrations less than 100 PPM with a 10 day continuous exposure.

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

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