SAFETY DATA SHEET

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

1. Identification
   
   **Product identifier**
   Chlorine Dioxide Solution
   
   **Other means of identification**
   Material Number: 57968789
   
   **Recommended use**
   Water treatment chemicals. Industrial use.
   
   **Recommended restrictions**
   None known
   
   Manufacturer/Importer/Supplier/Distributor information
   
   **Manufacturer**
   Company name: International Dioxcide, Inc.
   Address:
   40 Whitecap Drive
   North Kingstown, RI 02852
   United States of America
   
   Telephone
   Information #: (800) 477-6071
   
   Website
   https://idiclo2.com
   
   E-mail
   idiclo2@ercoworldwide.com
   
   Emergency phone number
   Canada & U.S.A.: (800) 424 9300 (CHEMTREC)
   International: (703) 527 3887
   
   **Supplier**
   Refer to Manufacturer

2. Hazard(s) Identification
   
   **Physical hazards**
   None
   
   **Health hazards**
   None
   
   **Environmental hazards**
   Not currently regulated by OSHA, refer to Section 12 for additional information.
   
   **OSHA defined hazards**
   While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), the SDS contains valuable information critical to the safe handling and proper use of the product. The SDS should be retained and available for employees and other users of this product.
   
   **Label elements**
   None
   
   **Signal word**
   None
   
   **Hazard statement**
   No known significant effects or critical hazards.
Precautionary statement

Prevention: Not applicable

Response: Not applicable

Storage: Not applicable

Disposal: Not applicable

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>Conc. % By Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine oxide (ClO2)</td>
<td>None</td>
<td>10049-04-4</td>
<td>≤0.44% w/w</td>
</tr>
</tbody>
</table>

Chemical name of impurities, stabilizing solvents and/or additives: None.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

4. First-Aid Measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin Contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Ingestion: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed: No known significant effects or critical hazards
Indication of immediate medical attention and special treatment needed

No known significant effects or critical hazards

General information

Notes to physician: Treat symptomatically. No specific treatment.

5. Fire-Fighting Measures

Suitable extinguishing media

Use an extinguishing agent suitable for the surrounding fire. In case of fire, use water spray (fog), foam or dry chemical.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

In a fire or if heated, a pressure increase will occur and the container may burst.

Special protective equipment and precautions for firefighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Firefighting equipment/instructions

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Specific methods

No specific data

General fire hazards

No specific data

Hazardous combustion products

No specific data

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact
information and Section 13 for waste disposal. Prevent entry into sewers, water courses, basements or confined areas.

Environmental precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

7. Handling and Storage

Precautions for safe handling
Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Conditions for safe storage, including any incompatibilities
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Empty containers or liners may retain some product residues.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits
Chlorine oxide (ClO2)
ACGIH TLV (United States, 3/2016).
TWA: 0.1 ppm 8 hours.
TWA: 0.28 mg/m³ 8 hours.
STEL: 0.3 ppm 15 minutes.
STEL: 0.83 mg/m³ 15 minutes.
OSHA PEL (United States, 6/2016).
TWA: 0.1 ppm 8 hours.
TWA: 0.3 mg/m³ 8 hours.

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures, such as personal protective equipment
Eye/face protection
If contact with product is possible, wear safety glasses with side shields.

Skin protection
Hand protection
Permeation resistant gloves.

Other
Permeation resistant clothing and foot protection.
Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Thermal Hazards

None known

General hygiene considerations

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and Chemical Properties

Appearance

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Chlorine [Slight]</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>2 to 8</td>
</tr>
<tr>
<td>Melting point/Freezing Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>100 °C (1013 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability limit – lower (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability limit – upper (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive limit – lower (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosive limit – upper (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility (ies)</td>
<td>Miscible in water</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Miscible in water</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
</tr>
<tr>
<td>Other information</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>1.01 g/cm³</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1 to 1.01</td>
</tr>
<tr>
<td>Surface tension</td>
<td>Not available</td>
</tr>
</tbody>
</table>
10. Stability and Reactivity

Reactivity No specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to Avoid No specific data.

Incompatible materials No specific data.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Information on likely routes of exposure

- Inhalation No known significant effects or critical hazards.
- Skin contact No known significant effects or critical hazards.
- Eye contact No known significant effects or critical hazards.
- Ingestion No known significant effects or critical hazards.

Delayed and immediate effects and chronic effects from short-term and long-term exposure

- Effects of short-term (acute) exposure Not available
- Effects of long-term (chronic) exposure Not available

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine oxide (ClO2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>93.86 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute LC50 Inhalation Vapor</td>
<td>Rat - Male, Female</td>
<td>89 mg/m³ over 4 hours (Test: EU B.2 Acute Toxicity, Inhalation)</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Not available

Serious eye damage/eye irritation Not available
Respiratory or skin sensitization
Respiratory sensitization Not sensitizing
Skin sensitizer Not sensitizing

Germ cell mutagenicity No known significant effects or critical hazards.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity Not classifiable as to carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Reproductive toxicity No known significant effects or critical hazards.

Specific target organ toxicity - single exposure No known significant effects or critical hazards.

Specific target organ toxicity - repeated exposure No known significant effects or critical hazards.

Aspiration toxicity No known significant effects or critical hazards.

Chronic effects No known significant effects or critical hazards.

12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Product</th>
<th>Species</th>
<th>Test</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>Chlorine oxide (ClO2)</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>EU EU Method C.3 (Algal Inhibition test)</td>
<td>1.096 mg/l over 72 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Daphnia - Daphnia magna</td>
<td>EU EU Method C.2 (Acute Toxicity for Daphnia)</td>
<td>0.063 mg/l over 48 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fish - Danio rerio</td>
<td>EU EU Method C.1 (Acute Toxicity for Fish)</td>
<td>0.021 mg/l over 96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability Not available
Bioaccumulative potential Not available
Mobility in soil Not available
Other adverse effects  No known significant effects or critical hazards.

13. Disposal Considerations

Disposal instructions The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Waste from residues / unused products Not available

Contaminated packaging Not available

14. Transport Information

DOT Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not Available.

General information RQ: 0 lbs.

15. Regulatory Information

SARA 311/312 None

SARA Title III Section 302 Extremely Hazardous Substances None

SARA Title III Section 313 Toxic Chemicals None

US EPA CERCLA Hazardous Substances (40 CFR 302.4) None
State Regulations
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS Number</th>
<th>State Code</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>-</td>
<td>≥90</td>
</tr>
</tbody>
</table>

Massachusetts Substances: MA - S
Massachusetts Extraordinary Hazardous Substances: MA - Extra HS
New Jersey Hazardous Substances: NJ - HS
Pennsylvania RTK Hazardous Substances: PA - RTK HS
Pennsylvania Special Hazardous Substances: PA - Special HS

California Prop. 65
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

U.S. Toxic Substances Control Act
Listed on the TSCA Inventory.

16. Other Information
Issue date: 7/1/2020
Revision #: 3
Revision Indicator: Updated SDS template.
List of abbreviations:
- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Services
- CERCLA: Comprehensive Environmental Response, Compensation and Liability Act of 1980
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to-Know Act
- ERG: Emergency Response Guidebook
- HSDB®: Hazardous Substances Data Bank
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- IBC: Intermediate Bulk Container
- IDLH: immediately dangerous to life or health
- IMDG: International Maritime Dangerous Goods
- LC: Lethal Concentration
- LD: Lethal Dose
- NIOSH: National Institute of Occupational Safety and Health
- NOEC: No observable effect concentration
- NTP: National Toxicology Program
- OECD: Organization for Economic Cooperation and Development
- OEL: National occupational exposure limits
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
Chlorine Dioxide Solution

RCRA: Resource Conservation and Recovery Act
RQ: Reportable Quantity
RTECS: Registry of Toxic Effects of Chemical Substances
SAR: supplied-air respirator
SCBA: self-contained breathing apparatus
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TWA: Time Weighted Average
UN: United Nations

References
None.

Disclaimer
Information presented in this SDS is furnished in accordance with OSHA’s Hazard Communication Standard (HCS) 2012.

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