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	**PurDOX**
Other means of identification	Not available
Recommended use	Industrial use
Recommended restrictions	None known

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	International Dioxcide, Inc. an ERCO Worldwide Company
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	Oxidizing liquids	Category 2
Health hazards	Eye Damage	Category 1
	Acute toxicity, oral	Category 4

Environmental hazards Not currently regulated by OSHA, refer to Section 12 for additional information.

OSHA defined hazards This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Label elements

Signal word Danger

Hazard statement
May intensify fire; oxidizer.
Harmful if swallowed.
Causes serious eye damage

Precautionary statement

Prevention	Wear eye protection and face protection Wear Protective gloves, clothing, eye and face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No Smoking Keep away from clothing and other combustible materials. Wash thoroughly after handling. Do not eat, drink or smoke when using this product
Response	**IN CASE OF FIRE:** Use only water to extinguish. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. **IF SWALLOWED**: Call a Poison Center if you feel unwell. Rinse mouth **IF ON CLOTHING**: Immediately remove, keep contaminated areas wet with water and launder.
Storage	Store separately
Disposal	Dispose of contents/container in accordance with all local, regional, national and international regulations.
Hazard(s) not otherwise classified (HNOC)	May cause mild skin irritation. Product is a strong oxidizer, if allowed to dry on organic materials could cause intense fire if heat is applied. Wear non melting clothing such as cotton when handling. In case of spill keep wet with water until cleaned up.

3. Composition/Information on Ingredients

Chemical name	Common name and synonyms	CAS number	Conc. % By Weight
Sodium chlorate	Chlorate of soda	7775-09-9	40% w/w
Hydrogen peroxide	None	7722-84-1	≤10% w/w
Water		7732-18-5	Balance

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 necessary.
Skin Contact	If on skin (or hair): Take off immediately all contaminated clothing. Rinse contaminated areas with water or take a shower. Call a POINSON CENTER or doctor/physician if you feel unwell. Wash contaminated clothing before reuse.

Eye Contact	Immediately flush eyes with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.
Ingestion	If swallowed: Rinse mouth. Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions. If the patient is conscious, give one or two glasses of water to dilute stomach contents. Seek medical attention immediately if the patient feels unwell or is unconscious.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	Notes to physician: Treat symptomatically. No specific treatment.

5. Fire-Fighting Measures

Suitable extinguishing media	Can only be extinguished with large quantities of water. Product is an oxidizer and will generate its own oxygen in a fire.
Unsuitable extinguishing media	DO NOT use dry chemical fire extinguishing agents containing ammonium compounds (such as some A:B:C agents), since an explosive compound can be formed. DO NOT use carbon dioxide, dry chemical powder or other extinguishing agents that smother flames, since they are not effective in extinguishing fires involving oxidizers.
Specific hazards arising from the chemical	Oxidizing material. May intensify fire.
Special protective equipment and precautions for firefighters	Fire-fighters must use standard protective equipment. Protective equipment contaminated with the product needs to be thoroughly decontaminated afterwards.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
Hazardous combustion products	Pure dry sodium chlorate decomposes explosively under intense fire conditions. It initially decomposes to sodium perchlorate and begins to liberate oxygen at about 265°C. Besides oxygen, other compounds formed in a fire include chlorine, hydrogen chloride and sodium oxide.

6. Accidental Release Measures

Personal precautions, protective equipment	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected

and emergency procedures	personnel from entering. Do not touch or walk-through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Stop leak if without risk. Move containers from spill area. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. 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. Contaminated absorbent material may pose the same hazard as the spilled product.
Environmental precautions	Avoid dispersal of spilled material 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	Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed. Keep away from clothing, incompatible materials and combustible materials. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. 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 away from incompatible materials and food and drink. Keep separate from reducing agents, acids, and combustible materials. 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. All containers should have venting capability and be regularly inspected for swelling. Use appropriate containment to avoid environmental contamination. Empty containers retain product residue and can be hazardous. Do not reuse container.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Sodium chlorate: None Hydrogen peroxide

ACGIH TLV (United States, 3/2016).
TWA: 1 ppm 8 hours.
TWA: 1.4 mg/m³ 8 hours.
OSHA PEL (United States, 6/2016).
TWA: 1 ppm 8 hours.
TWA: 1.4 mg/m³ 8 hours.

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

Appropriate engineering controls Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Eye wash fountain and emergency showers are recommended.

Skin protection

Hand protection Permeation resistant gloves.

Other For exposures with a high potential of contact, wear PVC or rubber rain suit, hard hat, rubber or plastic gloves, rubber boots, and safety glasses or goggles. Do Not Wear Leather Boots or Gloves.

Respiratory protection Use a NIOSH/MSHA approved respirator if there is a risk of exposure to mists at levels exceeding the exposure limits. Seek advice from respiratory protection specialists.

Thermal Hazards No specific data

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	
Physical state	Liquid
Form	Liquid
Color	Clear to light blue
Odor	Not available
Odor threshold	Not available
Molecular formula	Not available

Molecular weight	Not available
pH	2.0 to 4.0
Melting point/Freezing Point	Crystallization begins at -15°C
Initial boiling point and boiling range	Not available
Flash point	Closed cup: Not applicable
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	Not available
Flammability limit – upper (%)	Not available
Explosive limit – lower (%)	Not available
Explosive limit – upper (%)	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility (ies)	
Solubility (water)	Not available
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Other information	
Density	1.38 g/cm³
Flammability	Not available
Specific gravity	1.38
Surface tension	Not available

10. Stability and Reactivity

Reactivity	Will react with acids to form chlorine/chlorine dioxide gases.
Chemical stability	Stable when stored under normal conditions and kept free of contamination. Contamination, pH change, or elevated temperature may result in peroxide degradation and oxygen gas generation.
Possibility of hazardous reactions	Contact with combustible materials may increase the risk of causing or intensifying fire.
Conditions to Avoid	High temperature. Contamination. Allowing the product to dry on clothing or other combustible materials will increase flammability hazard and may cause fire.
Incompatible materials	Combustible materials, reducing materials, mineral acids, organic materials, and compounds that decompose hydrogen peroxide.

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 Mists may cause irritation to therespiratory system.

Skin contact Can cause mild skin irritation on contact.

Eye contact Can cause mild eye irritation on contact.

Ingestion Harmful if swallowed.

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

Effects of short-term (acute) exposure

May cause mild eye irritation. Symptoms may include redness and itching.

May cause mild skin irritation. Symptoms may include redness and itching.

May cause irritation to the nose, throat and upper respiratory tract if mist is inhaled. Symptoms may include coughing, choking and wheezing.

If a large quantity is ingested could cause cyanosis (bluish discoloration of the skin), nervous system damage, lung inflammation and pulmonary edema (fluid accumulation). Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects.

Acute toxicity

Component	Species	Test Results
Sodium chlorate		
Acute		
LD50 Oral	Rat	1200 mg/kg
LC50 Inhalation, vapor	Rat	>7 mg/l over 4 hours

Component	Species	Test Results
Hydrogen Peroxide		
Acute		
LD50 Oral	Rat	>500 mg/kg
LD50 Dermal	Rat	4060 mg/kg
LC50 Inhalation, vapor	Rat	>0.17 mg/l over 4 hours (LC50 could not be determined because no deaths were observed in the rats at the maximum saturation concentration).

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

Skin corrosion/irritation	Hydrogen Peroxide: Slightly irritant
Serious eye damage/eye irritation	Sodium chlorate: May cause mild eye irritation. Symptoms may include redness and itching. Hydrogen Peroxide: Severe irritant, Risk of serious damage to eyes.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitizer	Not a skin sensitizer.
Germ cell mutagenicity	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
IARC Monographs. Overall Evaluation of Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	
Reproductive toxicity	No known significant effects or critical hazards.
Specific target organ toxicity - single exposure	Not available
Specific target organ toxicity - repeated exposure	Not available
Aspiration toxicity	Not expected to be an aspiration hazard.
Chronic effects	Not available

12.Ecological Information

Ecotoxicity

Component	Species	Test Results
Hydrogen Peroxide		
Acute		
EC50	Algae – Skeletonema costatum	1.38 mg/l (growth rate) over 72 hours
EC50	Daphnia – Daphnia magna	2.4 mg/l over 48 hours
LC50	Fish – Pimephales promelas	16.4 mg/l over 96 hours
Chronic		
NOEC	Algae – Skeletonema costatum	0.63 mg/l (growth rate) over 72 hours
NOEC	Daphnia – Daphnia magna	0.63 mg/l over 21 days

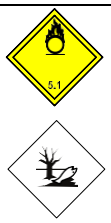
Persistence and degradability Hydrogen Peroxide: Readily

	Sodium Chlorate: Readily biodegradable. Degrades very slowly in soil under aerobic conditions. May decompose by microbial degradation more rapidly under anaerobic conditions.
Bioaccumulative potential	Hydrogen Peroxide: $LogP_{ow}$ -1.1, low potential
Mobility in soil	High water solubility indicates a high mobility in soil. Sodium chlorate can be leached out of soil. Chlorate accumulates in plant cells until toxic concentrations are reached and the plant dies.
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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. 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	When discarded in its purchased form, this product meets the criteria of ignitability, and should be managed as a hazardous waste (EPA Hazardous Waste Number D001). (40 CFR 261.20-24) 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 CFR261.20-24)
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use containers.

14.Transport Information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3139	Oxidizing liquid, n.o.s. (SODIUM CHLORATE, HYDROGEN PEROXIDE)	5.1	II		62, 127, 148, A2, IB2
IMDG Class	UN3139	OXIDIZING LIQUID, N.O.S. (SODIUM CHLORATE, HYDROGEN PEROXIDE)	5.1	II		**Emergency schedules (EmS)** F-A, S-Q
IATA-DGR Class	UN3139	Oxidizing liquid, n.o.s. (SODIUM CHLORATE, HYDROGEN PEROXIDE)	5.1	II		**Passenger aircraft** 550: 1 L **Cargo aircraft** 554: 5 L

RQ: 0 lbs.

15.Regulatory Information

SARA 311/312

Fire hazard
Acute health hazard
Serious eye damage/eye irritation

SARA Title III Section 302 Extremely Hazardous Substances

None

SARA Title III Section 313 Toxic Chemicals

None

US EPA CERCLA Hazardous Substances (40CFR 302.4)

None
Hydrogen Peroxide RQ is for concentrations > 52% only

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

Ingredient Name	CAS Number	State Code	Concentration (%)
Sodium chlorate	7775-09-9	MA - S, NJ - HS, PA - RTK HS	25-50

Hydrogen peroxide	7722-84-1	MA - S, NJ - HS, PA - RTK HS	≤10
Water	7732-18-5		50-75

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 4/5/2022
Revision # 7
Revision Indicator General review and update
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
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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