



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: OXINE (2% Stabilized Chlorine Dioxide)

CHEMICAL FAMILY: Mixture of Oxychlorine Compounds

MANUFACTURER: Bio-Cide International, Inc., 2650 Venture Drive, Norman, OK 73069 U.S.A.

EPA REGISTRATION NUMBER: 9804-1

EFFECTIVE DATE: June 2004

SUPERSEDES: April 2002

ACTIVE INGREDIENT: Chlorine Dioxide

OTHER INGREDIENTS: Sodium Chlorite (minimum amount)

PHYSICAL/CHEMICAL DATA:

Appearance and Odor: Clear liquid with very faint chlorinous odor

Boiling Point: 213 ° F (100.5 ° C)

Melting Point: N/A

Vapor Pressure: 23.7 mm Hg (25 ° C)

Vapor Density: 0.02 kg/m²

Specific Gravity: 1.03 g/mL (20 ° C)

Volatiles (By Volume): 97% (Water)

Evaporation Rate: Comparable to water

Solubility in Water: Complete

pH, Concentrate: 8.0 to 8.5

FIRE AND EXPLOSIVE HAZARD INFORMATION:

Fire Extinguishing Media: Water, unless contraindicated by other material involved in fire

Fire-Fighting Equipment: Standard protective gear with self-contained breathing apparatus.

Special Fire-Fighting Procedures: Do not allow **OXINE** solutions to evaporate to dryness. If Chlorine Dioxide gas is produced, vent to atmosphere. Open or vent any large containers of **OXINE**.

Unusual Fire or Explosive Hazards: The sodium chlorite in dried **OXINE** is a strong oxidizer, which support combustion. Chlorine Dioxide, which may evolve from **OXINE** solutions, is explosive in the gaseous phase at concentrations greater than 10% by volume. Do not allow chlorine dioxide gas to accumulate within a confined space.

REACTIVITY DATA:

Stability: Product is stable.

Conditions to Avoid: Avoid storing product under conditions in which it could evaporate into crystalline salt.

Incompatible Materials: Avoid accidental or uncontrolled contact of concentrate with concentrated acids, chlorine compounds, hypochlorite (bleach), sulfur and sulfite compounds, phosphorus, inorganic solvents, and combustible/flammable materials.

Hazardous Decomposition Products: Exposure to acids or chlorine compounds can produce uncontrolled generation of chlorine dioxide gas.

HEALTH HAZARD DATA:

INGESTION: Rat Oral LD 50:4,360 mg/kg. Ingestion may produce gastric discomfort, nausea, vomiting and diarrhea. Intake of large quantities may produce methemoglobinemia.

EYE CONTACT: Based on rabbit studies: **OXINE** has been given an EFA category III rating as a mild irritant. Exposure can produce slight irritation of conjunctiva, cornea and eyelid.

SKIN CONTACT: Based on rabbit studies: **OXINE** is listed as “practically not an irritant”. Prolonged exposure may produce localized irritation, contact dermatitis, mild erythema and edema.

SKIN ABSORPTION: Highly unlikely to be absorbed through skin in toxic amounts. Rabbit Acute Dermal LD 0 > 2,020 mg/kg.

INHALATION: Acute Inhalation: LC 50 > 5.61 mg/L
Prolonged inhalation of fog or mist containing **OXINE** may be irritating to nose and throat.

CHRONIC EXPOSURE EFFECTS: May caused localized irritation to areas exposed to product.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin disorders, such as dermal allergies and dermatitis. Exposure to chlorine dioxide produced by activation can aggravate pulmonary disorders, such as emphysema.

CARCINOGENICITY: Active ingredients are not listed by ROTECS, OSHA, IARC or NTP. No evidence to date implicating products as carcinogen or tumor promoter.

MUTAGENICITY: Though product active ingredient is a chemical oxidant, no evidence to date for mutagenicity from whole animal or in vitro studies.

REPRODUCTIVE EFFECTS: No known effects to date.

FIRST AID:

TARGET ORGANS:

Skin, eyes.

For children, dioxide produced from activation: Respiratory tract and exposed mucous membranes.

SYMPTOMS OF EXPOSURE:

Skin and eyes irritation. Exposure to chlorine dioxide from activation can produce coughing, sore throat, headache and dizziness.

FIRST AID:

SKIN CONTACT: Wash affected areas thoroughly with soap and water. Remove contaminated clothing and rinse thoroughly with water before laundering or discard. If irritation occurs, seek medical attention.

EYE CONTACT: Flush eyes thoroughly with water, making sure eyelids are held open. If irritation or burning persists, seek medical attention.

INHALATION: Unactivated **OXINE** normally has no respiratory effects. If exposure to chlorine dioxide produced from activation occurs, move victim to fresh air. Contact a physician if respiratory distress continues.

INGESTION: **DO NOT INDUCE VOMITTING.** Contact a physician or Poison Control Center immediately.

PLEASE NOTE:

Above procedures are recommended as emergency first aid precautions only. They are not intended to replace or supplant the treatment advice of a physician or other authorized health care specialist.

CONTROL MEASURE/PERSONAL PROTECTION EQUIPMENT:

VENTILATION: Open air or good room ventilation is normally adequate for safe use of this product. Avoid breathing any vapors or fumes resulting from acid activation.

RESPIRATORY PROTECTION: In accordance with OSHA regulations (29 CFR 1910.134 and 29 CFR 1910.1000), fogging or spraying applications may require worker respiratory protection, such as: (1) NIOSH/MSHA approved air-purifying respirators, or (2) NIOSH/MSHA approved canister/cartridge facial respirators rated for chlorine/acid vapors or specified for chlorine.

EYE PROTECTION: Good manufacturing practice recommends use of chemical safety goggles for all applications involving chemical handling.

PROTECTIVE CLOTHING: Good manufacturing practice recommends that, at a minimum, rubber, neoprene, or other chemically impervious gloves be worn for all applications involving chemical handling.

OTHER PROTECTIVE MEASURES: Product should be stored and applied in close proximity to a safety shower, chemical eyewash station, or other fresh water source.

SPECIAL PRECAUTIONS:

PRODUCT STORAGE:

Store in a cool, dry, well-ventilated location away from acids chlorine and chlorine compounds, hypochlorites (bleach), organic solvents, sulfur and sulfite compounds, phosphorus, combustible/flammable materials and direct sunlight. Keep containers tightly closed when not in use and open carefully to prevent spillage. Storage on wooden floors and pallets is not recommended.

PRODUCT HANDLING:

Use product only as directed by the label or by your authorized representative. Avoid contact with skin and eyes. Avoid breathing any vapors or fumes resulting from product activation. Wash thoroughly after handling. Thoroughly rinse all protective gear and handling equipment, such as transfer pumps and lines, with water prior to reuse or storage. Keep away from children, animals and unauthorized personnel.

OTHER PRECAUTIONS:

Product may bleach clothing and fabric materials, such as draperies and carpets.

SPILL, LEAK AND DISPOSAL PROCEDURES:

ENVIRONMENTAL NOTIFICATION:

All spills and leaks involving more than 10 gallons should be reported to the nearest regional EPA office or designated emergency response office within 24 hours. Spill from ocean vessels or which may contaminate coastal waterways should be reported to the nearest Coast Guard office within 24 hours.

SPILL OR LEAK PROCEDURE:

Small spills, involving less than 10 gallons, may be flushed to a designated and permitted sewer system with copious amounts of water. Larger spills should be contained and neutralized with sodium bisulfate or sodium thiosulfate (1.2 lbs. neutralizer per each estimated lb. of spilled material) or disposed of as chemical waste in the manner indicated below. The vicinity of the spill should be thoroughly flushed with water after clean-up. At no time should the spilled material be allowed to dry to a crystalline salt. Do not discharge this product to storm drains or to any surface or groundwater source unless specifically allowed under a valid NPDES permit.

DISPOSAL PROCEDURES:

Small quantities, less than 10 gallons, may be flushed to an authorized and permitted sewer with copious amounts of water. Larger volumes should be taken to an authorized chemical disposal site (Class 1 or landfill) in accordance with all federal, state, and local regulations. Consult with selected facility regarding the need for prior neutralization of waste.