



MATERIAL SAFETY DATA SHEET

CHLORINE DIOXIDE

SECTION 1 - PRODUCT IDENTIFICATION

Product Name and Synonyms

Chlorine Dioxide, Chlorine Oxide.

CAS Name and Number: Chlorine Dioxide; CAS# 10049-04-4.

Chemical Family: Chlorine Oxide Gas.

Chemical Formula: ClO₂.

Manufacturer's Name and Address

GEORGIA-PACIFIC WEST, INC.
300 W. Laurel Street (98225)
P.O. Box 1236
Bellingham, WA 98227
Telephone: 360-733-4410

Emergency Telephone Number

1-800-424-9300 CHEMTREC

SECTION 2 - HAZARDOUS INGREDIENTS

<u>COMPONENT</u>	<u>% WEIGHT</u>	<u>ACGIH TLV@ UNITS</u>	<u>ACGIH STEL UNITS</u>	<u>OSHA PEL UNITS</u>
Chlorine Dioxide	100	0.1 ppm	0.3 ppm	0.1 ppm

SECTION 3 - PHYSICAL PROPERTIES

Appearance and Odor: A yellow-to-reddish gas or liquid with a pungent, sharp odor.

Molecular Weight: 67.45.

Boiling Point (Degrees Fahrenheit): 50.

Melting Point (Degrees Fahrenheit): -74.

Vapor Pressure (MM of Mercury): >Atmosphere.

Specific Gravity (Water = 1): 1.6 (liquid).

Vapor Density (Air = 1): 2.3.

Percent Volatile (By Weight): 100%.

pH: Not applicable.

Solubility in Water: 0.8g/100g water @ 68°F.

Evaporation Rate (Butyl Acetate = 1): Not applicable.

SECTION 4 - FIRE AND EXPLOSION DATA

Flash Point: Not Known. Can explode under ambient conditions by contact with spark, sunlight, or rapid heating..

Fire Extinguishing Media: Use media appropriate for the surrounding fire.

Flammable Limits (Percent by Volume):

Lower:

Upper:

Explosive in air

10% (LEL)

100

Special Firefighting Procedures & Equipment: Firefighters must use MSHA- or NIOSH-approved self-contained breathing apparatus with a full facepiece, and full protective clothing.

Unusual Fire and Explosion Hazards: Chlorine dioxide can explode at concentrations of 10% or greater in air. Detonation can be initiated by virtually any form of energy, including sunlight, spark, heat, or flame. Reacts violently with phosphorus, potassium hydroxide, carbon monoxide, hydrogen, mercury.

Hazardous Combustion Products: Toxic chemicals, including chlorine gas, are generated when combustibles burn in the presence of chlorine dioxide.

SECTION 5 - REACTIVITY DATA

Stability: Unstable X Stable

Conditions to Avoid: May explode in air. Avoid accumulation in air above 10% concentration. Avoid heat, light, and sparks.

Incompatibility (Materials to Avoid): Combustible material, dust, organic matter, sulfur, phosphorus, potassium hydroxide, carbon monoxide, hydrogen, and mercury. Contact may cause decomposition, which can be violent and can produce chlorine and other toxic chemicals. Will react with water or steam to produce toxic and corrosive fumes of hydrochloric acid.

Hazardous Decomposition Products: Chlorine, hydrochloric acid.

Hazardous Polymerization: Will Occur Will Not Occur X

Conditions to Avoid: Not applicable.

SECTION 6 - HEALTH HAZARD INFORMATION

Exposure from Routine Use: Strong respiratory irritant.

Effects of Overexposure: Chlorine dioxide is a severe acute respiratory irritant; 5 ppm is definitely irritating, and death has been caused by 19 ppm. Can cause chronic effects on lungs. Long-term overexposure can result in bronchitis and emphysema.

Probable Routes of Exposure: Inhalation, eyes.

Emergency First Aid Procedures: Call physician IMMEDIATELY for any person overexposed to chlorine dioxide.

Eye Contact: Immediately flush with large quantities of water, occasionally lifting the upper and lower lids. Obtain medical attention.

Skin Contact: Treat for inhalation exposure first. If clothing is contaminated, remove and immediately flush skin with water. If irritation is present after washing, get medical attention.

Inhalation: Move person to fresh air at once. Get immediate medical attention.

Ingestion: Not likely, but if solution of chlorine dioxide is ingested, give large quantities of water to dilute. Obtain medical attention immediately.

SECTION 7 - TOXICITY DATA

Oral: LD₅₀ (rat) 272 mg/kg.

Dermal: Not available.

Inhalation: LC₅₀ (rat) - 500 ppm for 15 min.
IDLH (Immediately Dangerous to Life or Health): 5 ppm.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

Other Pertinent Data: 100 mg produced mild eye irritation in rabbits.

SECTION 8 - SPECIAL PROTECTION INFORMATION

Personal Protective Equipment

Protective Gloves: Impervious.

Eye Protection: Splashproof safety goggles.

Respiratory Protection (Specify Type): Only NIOSH- or MSHA-approved equipment should be used. Any self-contained breathing apparatus with a full facepiece or supplied-air respirator with a full facepiece, helmet, or hood.

Other Protective Equipment: Face shields (eight-inch minimum), appropriate impervious clothing necessary to prevent any possibility of skin contact.

Ventilation

Local Exhaust: If required to maintain PEL.

Mechanical (General): If required to maintain PEL.

Special: Not applicable.

Other: Use enclosed, isolated processing and handling whenever possible.

SECTION 9 - SPILL, LEAK, AND DISPOSAL PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

1. Notify safety personnel.
2. Ventilate area of leak to disperse gas.
3. Exclude from area all except specially trained, assigned personnel with approved self-contained breathing equipment and appropriate protective clothing.
4. Stop flow of gas.

A spill or release of this material may trigger the emergency release reporting requirements under SARA, Title III (40 CFR Part 355) and/or CERCLA (40 CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

Waste Disposal Methods: Allow gas to disperse at a safe location.

Clean Water Act Requirements: Not listed.

Resource Conservation and Recovery Act (RCRA) Requirements: Not listed.

SECTION 10 - REGULATORY INFORMATION

FDA: Not applicable.

USDA: Not applicable.

CPSC: Not listed in Hazardous Substances Labeling Guide.

TSCA: CAS# 10049-04-4, Chlorine Dioxide.

DOT: Forbidden from transportation.

Proper Shipping Name: Not applicable.

Hazard Class: Not applicable.

Label Required: Not applicable.

Identification No.: Not applicable.

Other Pertinent Information: Not applicable.

EPA: Superfund Amendments and Reauthorization Act (SARA) Title III: Section 313, Supplier Notification.

This product is known to contain the following chemicals, which are listed in 40 CFR 372.65 as toxic chemicals requiring supplier notification.

<u>Chemical</u>	<u>Chemical Abstract Service Registry No.</u>	<u>Percent by Weight</u>
Chlorine Dioxide	10049-04-4	100

This information must be included in all MSDSs that are copied and distributed for this material.

SECTION 11 - SPECIAL PRECAUTIONS AND COMMENTS

Precautions to be Taken in Handling and Storing

Store chlorine dioxide containers in well-ventilated areas of low fire potential, away from incompatible materials (see Section 5) and away from sources of heat and ignition. Protect containers from weather and physical damage; follow standard safety procedures for containers of compressed, corrosive gasses. Regularly inspect (and test) piping and containment used for chlorine dioxide service. Liquid levels should be less than 85% of tank or cylinder capacity. Provide special training to workers handling chlorine dioxide. Contact lenses should not be worn when working with chlorine dioxide.

Other Precautions

Use preplacement medical exams; preclude from workplace exposure to chlorine dioxide those with cardiac, pulmonary, or chronic respiratory problems.

Registrations / Certifications: Not applicable.

Effective Date: 1/01/00

Supersedes: 8/29/97

IMPORTANT: The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. GEORGIA-PACIFIC MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED. Georgia-Pacific will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete, or otherwise misleading.

The symbol "●" indicates revision from previous issue.