



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Section 1. Identification

Product identifier

Product Identity

Chlorine Dioxide Solution

Other means of identification

Chlorine Dioxide Solution

Relevant identified uses of the substance or mixture and uses advised against

Pulp bleaching, water treatment, disinfection.

Details of the supplier of the safety data sheet

Company Name

International Dioxide, Inc. an ERCO Worldwide Company

Address

40 Whitecap Drive North Kingstown, RI 02852 USA

Telephone

1-(800) 477-6071

Website

<https://www.ercoworldwide.com/>

Email

productinfo@ercoworldwide.com

24 hour Emergency Telephone No.

Canada & U.S.A.: 1-(800) 424 9300 (CHEMTREC)

Supplier

Refer to Manufacturer

Section 2. Hazard(s) identification

Classification of the substance or mixture

Skin corrosion/irritation category 2;H315

Causes skin irritation.

Serious eye damage / eye irritation, category 2A;H319

Causes serious eye irritation.

Aquatic toxicity (acute), category 2;H401

Toxic to aquatic life.

Aquatic toxicity (chronic), category 3;H412

Harmful to aquatic life with long lasting effects.

Label elements



Warning

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H401 Toxic to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

[Prevention]

P264 Wash thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves, eye protection, and face protection.

[Response]

P302+352 IF ON SKIN: Wash with plenty of soap and water.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+313 If skin irritation occurs: Get medical attention.

P337+313 If eye irritation persists: Get medical advice or attention.

P362+364 Take off contaminated clothing and wash it before reuse.

[Storage]

No GHS storage statements

[Disposal]

P501 Dispose of contents or container in accordance with local and national regulations.

2.3. Other hazards

This product contains no PBT/vPvB chemicals.

This product contains no endocrine disrupting chemicals.

Section 3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Hazardous Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Chlorine dioxide CAS Number: 10049-04-4 Synonyms: Chlorine oxide	0.5 - 1.5	Acute toxicity(oral), category 3;H301 Aquatic toxicity (acute), category 1;H400 Specific target organ toxicity, Specific exposure category 3;H335: C ≥ 3 % Skin corrosion/irritation category 1B;H314: C ≥ 5 % Skin corrosion/irritation category 2;H315: 1 % ≤ C < 5 % Serious eye damage / eye irritation, category 1;H318: 3 % ≤ C < 5 % Serious eye damage / eye irritation, category 2;H319: 0,3 % ≤ C < 3 %	No data available

The actual concentration or concentration range is withheld as a trade secret.

*PBT/vPvB - PBT-substance or vPvB-substance.

The full texts of the phrases are shown in Section 16.

Section 4. First aid measures

Description of first aid measures

General

In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes	Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Overview	No specific symptom data available. Treat symptomatically. See section 2 for further details.
Eyes	Causes serious eye irritation.
Skin	Causes skin irritation.

Section 5. Fire-fighting measures**Extinguishing media**

Recommended extinguishing media; alcohol resistant foam, CO², powder, water spray.
Unsuitable extinguishing media: Do not use; water jet.

Special hazards arising from the substance or mixture

Hazardous decomposition: No hazardous decomposition data available.

Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking.

ERG Guide No. ---

Section 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Put on appropriate personal protective equipment (see section 8).

Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Methods and material for containment and cleaning up

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8. Contain and absorb spillage with non-combustible materials e.g. sand, earth, and vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations.

Section 7. Handling and storage

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

See section 2 for further details. - [Prevention]

Conditions for safe storage, including any incompatibilities

Incompatible materials: No data available.

See section 2 for further details. - [Storage]

Specific end use(s)

No data available.

Section 8. Exposure controls / personal protection

Control parameters

Exposure			
CAS No.	Ingredient	Source	Value
10049-04-4	Chlorine dioxide	ACGIH	0.1 ppm Ceiling
		Alberta	0.1 ppm TWA; 0.3 mg/m ³ TWA 0.3 ppm STEL; 0.8 mg/m ³ STEL
		British Columbia	0.1 ppm TWA 0.3 ppm STEL
		Manitoba	No Established Limit
		New Brunswick	0.1 ppm TWA; 0.28 mg/m ³ TWA 0.3 ppm STEL; 0.83 mg/m ³ STEL
		Newfoundland and Labrador	No Established Limit
		Nova Scotia	No Established Limit
		Northwest Territories	0.1 ppm TWA 0.3 ppm STEL
		Nunavut	0.1 ppm TWA 0.3 ppm STEL
		Ontario	0.1 ppm TWA 0.3 ppm STEL
		Prince Edward Island	No Established Limit
		Quebec	0.1 ppm TWAEV; 0.28 mg/m ³ TWAEV 0.3 ppm STEV; 0.83 mg/m ³ STEV
		Saskatchewan	0.1 ppm TWA 0.3 ppm STEL
		Yukon	0.1 ppm TWA; 0.3 mg/m ³ TWA 0.3 ppm STEL; 0.9 mg/m ³ STEL

Exposure controls

Respiratory

If workers are exposed to concentrations above the exposure limit, they must use the appropriate, certified respirators.



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Eyes	Wear safety glasses with side shields to protect the eyes. An eye wash station is suggested as a good workplace practice.
Skin	Wear PVC or rubber gloves to keep skin contact to a minimum. Refer to the manufacturer's recommendations regarding the suitability of any gloves used.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid Pale yellow; Gas: Yellow/green. Normally used as solution in water. Pure chlorine dioxide is a gas at normal temperatures but is unstable and will decompose violently unless diluted with an inert gas or handled at a reduced pressure.
Color	
Odor	Similar to Chlorine or Ozone.
Melting point / freezing point	Not applicable for solution. For gas: - 59°C
Initial boiling point and boiling range	Not applicable for the water solution. For gas 11°C
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Available Upper Explosive Limit: Not Available
Flash Point	Not combustible
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available
pH	2 to 3 (8 g/L solution.)
Viscosity (cSt)	Not Available
Solubility in Water	The product is water solution of chlorine dioxide (the solubility depends on the temperature and partial pressure of the gas, e.g. 10 g/L @ 15°C and 74.5 mm Hg partial pressure is typical)
Partition coefficient n-octanol/water (Log Kow)	Not Available
Vapour pressure (Pa)	Not available.
Relative Density	Relative density (water = 1): 1.6 at 0°C (liquid) Specific gravity: For solution - close to 1 g/L
Vapour Density	2.4 (air=1) (for 100% ClO ₂)



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Evaporation rate (Ether = 1)

Not Available

Explosive Limits

Chlorine dioxide solution is not explosive. Chlorine dioxide gas which may evolve from chlorine dioxide solution, may spontaneously decompose with a mild energy release at concentrations of 10% in air or greater at standard temperature and pressure (76 mm Hg partial pressure)

Coefficient of Water/Oil Distribution:

Log P(oct) = -3.22 (estimated)

Other information

No other relevant information.

Section 10. Stability and reactivity

Reactivity

Hazardous Polymerization will not occur.

Chemical stability

Stable under normal circumstances.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible materials

No data available.

Hazardous decomposition products

No hazardous decomposition data available.

Section 11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm



Safety Data Sheet

Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Chlorine dioxide - (10049-04-4)	292.00, Rat - Category: 3	No data available.	No data available.	No data available.	No data available.
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Carcinogen Data

CAS No.	Ingredient	Source	Value
10049-04-4	Chlorine dioxide	IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
		ACGIH	No Established Limit

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Serious eye damage/irritation	2A	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-single exposure	3	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry: No data available.

Symptoms and effects, both acute and delayed:

No specific symptom data available.

Treat symptomatically.

Eyes Causes serious eye irritation.

Skin Causes skin irritation.

Section 12. Ecological information

Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
Chlorine dioxide - (10049-04-4)	0.17, fathead minnow	No data available.	No data available.



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

Not Available

Mobility in soil

No data available.

Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

Other adverse effects

No data available.

Section 13. Disposal considerations

Waste treatment methods

Waste should not be released to sewers. Observe all federal, state, and local regulations when disposing of this substance.

Section 14. Transport information

Classification Method: Classified as per Part 2, Sections 2.1 - 2.8 of the Transportation of Dangerous Goods Regulations.

	TDG (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN number	Forbidden	Forbidden	Forbidden
UN proper shipping name	Chlorine Dioxide	Chlorine Dioxide	Chlorine Dioxide
Transport hazard class(es)	TDG Hazard Class: Not Applicable Sub Class: Not Applicable	IMDG: Not Applicable Sub Class: Not Applicable	Air Class: Not Applicable Sub Class: Not Applicable
Packing group	Not Applicable	Not Applicable	Not Applicable
Environmental hazards			
	Marine Pollutant: no;		
Special precautions for user	Not Applicable		

Section 15. Regulatory information



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

This product has been classified in accordance with the hazard criteria Hazardous Products Regulations (SOR/2015-17) and the SDS contains all of the information required by those regulations.

Toxic Substance Control Act (TSCA)

Chlorine dioxide ()

Water ()

Canadian Domestic Substance List (DSL):

Chlorine dioxide

Water

Canadian Non-Domestic Substance List (NDSL):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Chlorine dioxide

Pennsylvania RTK Substances (>1%):

Chlorine dioxide

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Chemical Name (CAS Number)	US TSCA	Australia AICS	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EN NLP	Mexico INSQ
Chlorine dioxide (10049-04-4)	Yes	Yes	Yes	Yes	No	No	No	Yes

Chemical Name (CAS Number)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCS	Japan PRTR 1	Japan PRTR 2	Philippines PICCS	New Zealand NZIOC
Chlorine dioxide (10049-04-4)	Yes	Yes	Yes	No	No	No	No	Yes

Section 16. Other information

Revision Date

03/04/2024



Safety Data Sheet Chlorine Dioxide Solution

Revision
Date: 03/04/2024

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The full text of the phrases appearing in section 3 is:

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

End of Document

