

SAFETY DATA SHEET

Chlorine Dioxide (0.2%, 0.3%, 0.4%)



1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

- Product name** : Chlorine Dioxide (0.2%, 0.3%, 0.4%)
Product type : Liquid.
Material uses : Not available.
Manufacturer : Duka Production Ltd.
 Box 123, St 2 , RR 1
 DeWinton, AB T0L 0X0
 CANADA
 Tel: (403) 938-5272
 Fax:(403) 938-5275
 info@duka.ca
- Importer** : Dunbow Ltd.
 PO Box 30,
 7730 AA OMMEN,
 The Netherlands
 Tel: +31 88 0333 003
 Fax: +31 84 83 70952
 info@dutrion.com
- e-mail address of person responsible for this SDS** : info@dutrion.com
- Emergency telephone number (with hours of operation)** : +31 88 0333 003 (8.00 AM – 8.00 PM)

2. HAZARDS IDENTIFICATION

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

- Classification** : O; R8
 T; R23
- Physical/chemical hazards** : Contact with combustible material may cause fire.
- Human health hazards** : Toxic by inhalation.

See section 11 for more detailed information on health effects and symptoms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Mixture

Ingredient name	CAS number	%	EC number	Classification
Sodium chlorite	7758-19-2	0.1 - 1	231-836-6	O; R8 Xn; R22 C; R34 R32 [1]
Sodium bisulfate	7681-38-1	0.1 - 1	231-665-7	Xi; R41 [1]
Chlorine dioxide	10049-04-4	0.1 - 1	233-162-8	O; R8 R6 T+; R26 C; R34 N; R50 [1] [2]
See section 16 for the full text of the R-phrases declared above				

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 or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

[4] vPvB-substance

3. COMPOSITION/INFORMATION ON INGREDIENTS

Occupational exposure limits, if available, are listed in section 8.

4. FIRST AID MEASURES

- Inhalation** : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention immediately. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
- Ingestion** : Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention immediately. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
- Skin contact** : Flush contaminated skin with plenty of water. Continue to rinse for at least 20 minutes. Get medical attention immediately.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 20 minutes. Get medical attention.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See section 11 for more detailed information on health effects and symptoms.

5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
sulfur oxides
halogenated compounds
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : 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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilt 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).

Methods for cleaning up

6. ACCIDENTAL RELEASE MEASURES

- Spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. 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). Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. HANDLING AND STORAGE

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from combustible material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : 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. Separate from reducing agents 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
- Packaging materials**
- Recommended** : Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
Chlorine dioxide	EH40/2005 WELs (United Kingdom (UK), 8/2007). STEL: 0.84 mg/m ³ 15 minute(s). STEL: 0.3 ppm 15 minute(s). TWA: 0.28 mg/m ³ 8 hour(s). TWA: 0.1 ppm 8 hour(s).

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.
- Exposure controls**
- Occupational exposure 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.
- Hygiene measures** : 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.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance

- Physical state** : Liquid.
- Colour** : Yellowish.
- Odour** : Chlorine. [Strong]

Important health, safety and environmental information

- pH** : 1.8 to 2.3

10. STABILITY AND REACTIVITY

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of causing or intensifying fire
- Conditions to avoid** : Drying on clothing or other combustible materials may cause fire.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, metals, acids and alkalis.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics

- Absorption** : Routes of entry anticipated: Oral, Dermal, Inhalation.
- Distribution** : Contains material which causes damage to the following organs: lungs, upper respiratory tract, eye, lens or cornea.
Contains material which may cause damage to the following organs: mucous membranes, skin.
- Metabolism** : Not available.
- Elimination** : Not available.

Potential acute health effects

- Inhalation** : Toxic by inhalation.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : May cause skin irritation.
- Eye contact** : May cause eye irritation.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sodium chlorite	LC50 Inhalation Vapour	Rat	230 mg/m3	4 hours
	LD50 Oral	Rat	165 mg/kg	-
Sodium bisulfate	LD50 Oral	Rat	2800 mg/kg	-
	LD50 Oral	Rat	140 mg/kg	-

11. TOXICOLOGICAL INFORMATION

Potential chronic health effects

- Chronic effects** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Inhalation** : No specific data.
Ingestion : No specific data.
Skin : No specific data.
Eyes : No specific data.

12. ECOLOGICAL INFORMATION

- Ecotoxicity** : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Sodium chlorite	Acute EC50 0.0146 to 0.018 ppm Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
Chlorine dioxide	Acute LC50 75 to 90 ppm Marine water	Fish - Cyprinodon variegatus	96 hours
	Acute EC50 1.8 ppm Fresh water	Daphnia - Daphnia pulex - Adult	48 hours
	Acute LC50 500000 ug/L Marine water	Crustaceans - Carcinus maenas - Adult	48 hours
	Acute LC50 6400000 ug/L Fresh water	Fish - Rasbora heteromorpha - 1 to 3 cm	96 hours

- Other adverse effects** : No known significant effects or critical hazards.
PBT : Not applicable.
vPvB : Not applicable.

13. DISPOSAL CONSIDERATIONS




- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

- European waste catalogue (EWC)** : 133200


- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

14. TRANSPORT INFORMATION

International transport regulations

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADR/RID Class	UN1908	CHLORITE SOLUTION (Chlorine dioxide)	5.1	II		-
ADN/ADNR Class	UN1908	CHLORITE SOLUTION (Chlorine dioxide)	5.1	II		-
IMDG Class	UN1908	CHLORITE SOLUTION (Chlorine dioxide)	5.1	II		-

14. TRANSPORT INFORMATION

IATA Class	UN1908	CHLORITE SOLUTION (Chlorine dioxide)	5.1	II		-
-------------------	--------	---	-----	----	---	---

PG* : Packing group

Exemption to the above classification may apply.

15. REGULATORY INFORMATION

EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :



Oxidising, Toxic

Risk phrases

: R8- Contact with combustible material may cause fire.
R23- Toxic by inhalation.

Safety phrases

: S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains

: Chlorine dioxide

Product use

: Industrial applications.

Europe inventory

: All components are listed or exempted.

Black List Chemicals

: Not listed

Priority List Chemicals

: Not listed

Integrated pollution prevention and control list (IPPC) - Air

: Not listed

Integrated pollution prevention and control list (IPPC) - Water

: Not listed

International regulations

Chemical Weapons Convention: Not listed
List Schedule I Chemicals

Chemical Weapons Convention: Not listed
List Schedule II Chemicals

Chemical Weapons Convention: Not listed
List Schedule III Chemicals

16. OTHER INFORMATION

Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)

: R8- Contact with combustible material may cause fire.
R6- Explosive with or without contact with air.
R26- Very toxic by inhalation.
R23- Toxic by inhalation.
R22- Harmful if swallowed.
R34- Causes burns.
R41- Risk of serious damage to eyes.
R32- Contact with acids liberates very toxic gas.
R50- Very toxic to aquatic organisms.

16. OTHER INFORMATION

Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK) :

- O - Oxidising
- T+ - Very toxic
- T - Toxic
- C - Corrosive
- Xn - Harmful
- Xi - Irritant
- N - Dangerous for the environment

History

Date of issue (dd/mm/yyyy) : 01/05/2010
Version : 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



Dr. Luc Séguin, PhD chemist, 25 years as a professional in regulatory compliance



Global - Multilingual authoring services for all regulatory documents



Optimizing your company's GHS deployment

