Material Safety Data Sheet
eOx International b.v.

1 PRODUCT NAME: EOXIDE LQ 75 COMPONENT -A
Product Code:
Purpose: Chemical Basic Component for ClO2
Type of product: Product in solution
Registration number: N-40741
Manufacturer Identification: Manufactured by: eOx International b.v.
1e Lulofsdwarsstraat 117, 2521 AZ,
The Hague, The Netherlands,
Tel: +31 70 380 07 75 - Fax :+31 70 384 14 76
E-mail: info@eox-international.com

2 HAZARDS INFORMATION / RISKS

(o) Oxidizing (Xi) Harmful (N) Dangerous for the environment

Oxidizing (O): **R08** – Contact with combustible material may cause fire
Harmful (Xn): **R22** – Harmful if swallowed
Irritant (Xi): **R41** – Risk of serious damage to eyes
Other: **R32** – Contact with acids liberates very toxic gas
Dangerous for the environment (N): **R50** – Very toxic to aquatic organisms

3 COMPOSITION/INFORMATION ON ELEMENTS
Hazardous components:
Sodium Chlorite: **% Weight:** 10-25%
CAS-nr: 7758-19-2
EC-nr: 231-836-6
R-wording: 08-22-23/24-32-34-41-50
Symbol: O TN
Full text of each relevant R phrase can be found in heading 16

4 FIRST AID MEASURES
General indications: In the event of serious problems call a doctor or summon medical assistance urgently.
After Inhalation: Remove victim to fresh air. Allow the affected person to rest. If not breathing, give artificial respiration. Take to hospital. Risk of pulmonary oedema. Take patient to hospital IMMEDIATELY.
After Skin Contact: Rinse immediately with plenty of water. Remove contaminated clothing and shoes. Rinse abundantly with water (shower if necessary). Obtain medical attention.
After Eye Contact. Rinse immediately, thoroughly and long (at least 15 min.) with plenty of water. Remove contact lenses. Take to eye doctor afterwards. Keep rinsing or dripping the eye during transport.
After Ingestion: DO NOT INDUCE VOMITING. Rinse mouth with water. Take to hospital IMMEDIATELY.
Emergency medical Treatment: Symptomatic treatment and supportive therapy as indicated.

5 FIRE FIGHTING MEASURES
Suitable Extinguishing Media: Incombustible product, but stimulates fire of other materials. Powder, Water spray.
In-suitable Extinguishing Media: Carbon dioxide, Foam.
Special exposure hazards: May release heat and harmful fumes. Contact with combustible material may cause fire after impregnation and drying.
Protection against fire: Evacuate unnecessary personnel. Wear proper protective equipment. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Special Exposure Hazards: Contact with acids liberates toxic gas.
Special procedures: Exercise caution when fighting any chemical fire.

6 ACCIDENTAL SPILL OR RELEASE MEASURES
Personal Precautions: Equip cleanup crew with proper protection. Avoid contact with skin and eyes. Only approved supplied air or self-contained breathing apparatus operated in positive pressure mode are satisfactory, if exposure can exceed the exposure limit. Remove ignition sources. Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.
Environmental Precautions: Prevent entry to public water, sewers or soil. Notify authorities if product enters sewer or public waters.
After spillage/leakage: Flush with plenty of water. Do not allow product to dry out. Contact with combustible material may cause fire after impregnation and drying.
Recovery on soil: Stop the spillage, if possible without risk for the workforce. Dike for recovery or absorb with appropriate material. sweep or shovel spills into appropriate container for disposal. Do not absorb with combustible materials (sawdust, …).

7 HANDLING AND STORAGE
Technical measures: Handle in accordance with good industrial hygiene and safety procedures.
Prevention of worker exposure: Where exposure trough inhalation may occur from use, approved respiratory protection equipment is recommended. Ensure prompt removal from eyes, skin and clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work.
Storage recommended:. Provide local exhaust or general room ventilation to minimize dust and/or vapor concentrations. Keep containers closed when not in use. Keep temperature not exceeding 50°C. Keep in fireproof place. Keep only in the original container in a cool, well ventilated place. Use special care to avoid static electric charges.
Incompatible materials: Acids, Reducing agents, Organic compounds, Wood, Paper. Packaging materials recommended Polyester, Polyethylene, Stainless steel, (Small quantities: Glass).
Packaging materials NOT recommended: Steel, Copper, Copper and its alloys, Aluminum and its alloys, Rubber.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION
Engineering Measures: Ventilate area.
Occupational Exposure Limits: Not established. Limit value (Belgium) 0,1 ppm (0,28 mg/m3) (2007) Short time value (Belgium): 0,3 ppm (0,84 mg/m3) (2007).
Respiratory Protection: Ventilation, Local exhaust. Respiratory protection equipment (Combination filter type FPP2).
Eye Protection: Chemical goggles or face shield with safety glasses.
Skin Protection: Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. PVC gloves, Neoprene, use nitrilic rubber gloves.
Industrial Hygiene: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure. Ensure prompt removal from eyes, skin and clothing.

9 PHYSICAL/CHEMICAL PROPERTIES
Physical State / Appearance: Liquid
Color: Slightly yellow to green
Odor: Characteristic
Decomposition temperature: >170°C
Specific Gravity / Density (20°): 1.20 g/cm³
Solubility in water: complete
pH value: >12. 20°C

10 STABILITY AND REACTIVITY
Stability and Reactivity: Product is stable under normal temperature and pressures.
Store away from heat/moisture.
Hazardous Reactions: Reacts with Acids: releasing chlorine dioxide (ClO2).
Hazardous Decomposition Products: Thermal decomposition (dry powder) > 180°C.
Thermal decomposition generates: chlorine dioxide, chlorates.
Conditions to Avoid:. Temperature not exceeding 50°C. Store away from heat/moisture.
Materials to Avoid: Acids, Organic compounds, Combustibles, oil reducing agents.

11 TOXICOLOGICAL INFORMATION
Acute Toxicity:
Inhalation: May cause irritation of respiratory tract. Danger of Methemoglobinemia. Symptoms include: Sore throat, Cough, Shortness of breath, Difficulty in breathing.
Sodium chlorite: LC50 (Rat, inhalation, 4h): >0,20 mg/l. Skin contact
Skin contact: May be irritating for the skin. Symptoms include: Redness, Pain.
Sodium chlorite: LD50 (Rat, dermal): >300 mg/kg.
Eye contact: May be irritating to eyes. Risk of serious damage to eyes.
Symptoms include: Redness, Pain, Bad vision.
Ingestion: Harmful if swallowed. Symptoms include: Vomiting, Burning pain in mouth, throat, oesophagus and stomach. Difficulty in breathing, Abdominal cramps. Sodium chlorite: Ld50 (Rat, oral): >100 mg/kg.
Carcinogenicity: No significant hazards.
Tetratogenicity: No significant hazards.
Other toxicological information: Information on the webaddress http://ecb.jrc.it/ESIS (see IUCLID Data Sheets).

12 ECOLOGICAL INFORMATION
Mobility: Product miscible with water
Persistence and degradability: No data available
Bioaccumulation: No data available
Ecotoxicity: Very toxic to aquatic organisms. Sodium chlorite: LC50 (Fish, 96h): >500 mg/l.
Sodium chlorite EC50 (Daphnia magna, 48h): < 1 mg/l.
Other ecological information: Information on the webaddress http://ecb.jrc.it/ESIS (see IUCLID Data Sheets).

13 DISPOSAL CONSIDERATIONS
Waste Information: Removing of residues – Removal as waste according to local and national prescriptions. Polluted Packaging – Removal as waste according to local and national prescriptions.
Treatment of dirty packaging: After last use, the packaging should be totally empty and closed. The used packing is only suitable for the packing of this product. When the packing is consigned, it should be brought back by the supplier.

14 TRANSPORT INFORMATION
ADR
UN-number: 1908
Proper shipping name: Chlorite solution
ADR Class / Packing group: 8, II
IATA/ICAO
UN-number: 1908
Proper shipping name: Chlorite solution
IATA Class / Packing group : 8, II
IMDG:
UN-number: 1908 CHLORITE SOLUTION, 8, II,
Proper shipping name: Chlorite solution
IMO Class / Packing group: 8, II
EmS-N°: F-A, S-B
Marine pollutant: NO

15 REGULATORY INFORMATION
Labeling Marks According to EC-Directives 67/548/EECs: Product not mentioned in list of dangerous goods (Annex 1 of directive 67/548/EC, most recent adaptation). The data mentioned at the bottom are recommended by the producer.
Recognition Numbers and Hazard Symbols:

(o) Oxidizing (Xi) Harmful (N) Dangerous for the environment.

Content: UN 1908 Sodium Chlorite solution

R-Phrases:	**08**	Contact with combustible material cause fire.
	22	Harmful if swallowed.
	31	Contact with acids liberates very toxic gas.
	41	Risk of serious damages to eyes.
	50	Very toxic to aquatic organisms.
S-Phrases:	**14**	Keep away from reducing materials, acids, bases and salts of heavy metals.
	17	Keep away from combustible material.
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	61	Avoid release to the environment. Refer to special instructions/Safety data sheets.

16 OTHER INFORMATION
This safety data sheet has been drawn up in accordance with THE REACH-ENACTMENT (EG) nr. 1907/2006, art.31 appendix II. This safety data sheet is exclusively made for industrial/professional use.
Full text of any R phrases referred to under heading 2:

R8	Contact with combustible material may cause fire
R22	Harmful if swallowed
R23/24	Toxic by inhalation and in contact with skin
R32	Contact with acids liberates toxic gas
R34	Causes burns
R41	Risk of serious damage to eyes
R50	Very toxic to aquatic organisms

Sources of key data used: The information contained herein is based on the present state of our knowledge.

Material Safety Data Sheet
eOx International b.v.

1 PRODUCT NAME: EOXIDE LQ 75 COMPONENT -B
Product Code:
Registration number: N-40741
Purpose: Chemical intermediate
Manufacturer Identification: Manufactured by: eOx International bv
1e Lulofsdwarsstraat 117, 2521 AZ,
The Hague, The Netherlands
Tel: +31 70 380 07 75 Fax :+31 70 384 14 76 E-mail: info@eox-international.com

2 HAZARDS INFORMATION / RISKS

O) Oxidizing (Xi) Harmful
Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

3 COMPOSITION/INFORMATION ON ELEMENTS
Hazardous components:

	Sodium hydrogensulphate	**Sodiumpersulphate**
% Weight	>10	>10
CAS-nr	7681-38-1, 231-665-7	7775-27-1
EC-nr		231892-1
R-wording	41	8-22-36/37/38-42/43
Symbol	X	O, XN

Full text of each relevant R phrase can be found in heading 16

4 FIRST AID MEASURES
After Inhalation: Remove victim to fresh air. Respiratory problems: consult a doctor/medical service.
After Skin Contact: Rinse with water. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.
After Eye Contact: Rinse immediately thoroughly and long (at least 15 min.) with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist.
After Ingestion: Rinse mouth with water.
Emergency medical treatment: Immediately give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service if you feel unwell.

5 FIRE FIGHTING MEASURES
Suitable Extinguishing Media: contact with combustible material may cause fire. For surrounding fires: all extinguishing media allowed.
Unsuitable extinguishing media: No data available.
Special exposure hazards: On heating/burning: release of toxic and corrosive gases/vapors: sulphur oxide.
Instructions: Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray.
Special protective equipment for fire fighters: Heat/fire exposure: compressed air/oxygen apparatus

6 ACCIDENTAL SPILL OR RELEASE MEASURES
Personal Precautions: See heading 8.
Environmental Precautions: Contain released substance. Remove all combustible materials, pump into suitable containers. Plug the leak, cut off the supply.
Methods for cleaning up: Take up liquid spill into absorbent material. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling

7 HANDLING AND STORAGE
Technical measures: Handle in accordance with good industrial hygiene and safety procedures
Handling: Reduce/avoid exposure and/or contact. Remove contaminated clothing immediately. Clean contaminated clothing.
Storage recommended: Keep container tightly closed. Meet the legal requirements. Keep away from: heat sources, metals.
Packaging materials recommended: polyethylene, polypropylene, PVC.
Packaging materials NOT recommended: Avoid metal.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION
Respiratory protection: Work under local exhaust/ventilation. High vapor concentration: gas mask with filter B.
Eye Protection: Chemical goggles or face shield with safety glasses.
Skin Protection: Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn.
Industrial Hygiene: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure. Ensure prompt removal from eyes, skin and clothing.

9 PHYSICAL/CHEMICAL PROPERTIES
Physical State / Appearance: Liquid
Color: Colorless
Odor: Mild Characteristic
Decomposition temperature: not determined
Specific Gravity / Density (20°): 1,27 g/cm3
Solubility in water: complete
pH value: not determined 20°C

10 STABILITY AND REACTIVITY
Stability and Reactivity: Product is stable under normal temperature and pressures.
Conditions to Avoid: Keep away from heat, metals.
Hazardous decomposition products: On heating/burning release of toxic and corrosive gases/vapors: sulphur oxides. React wiyh (some) metals

11 TOXICOLOGICAL INFORMATION.
Acute Toxicity:
Rat oral LD50: (mg/kg), 2460 mg/kg.
Rabbit dermal LD50: (mg/kg) 193 mg/kg
Rabbit dermal LD50: not determined
Rat inhalation LC50 (mg/l/4h): not determined
Chronic toxicity Ingestion: not determined
Carcinogenicity: not listed
Tetratogenicity: not listed
Acute effects: Inhalation exposure to high concentrations
Inhalation: Irritation of the respiratory tract. Irritation of the nasal mucous membranes
After Skin Contact on continuous exposure/contact: Tingling/irritation of the skin.
After eye contact: Irritation of the eye tissue. Inflammation/damage of the eye tissue
Chronic effects: Not listed in carcinogenicity class (IARC, EC, TLV,MAK). Not listed in mutagenicity class (EC, MAK). Not classified as toxic to reproduction (EC)

12 ECOLOGICAL INFORMATION
Water toxicity: Avoid release to the environment
48 H-CE50-Daphnia magna (mg/l): 190 mg/l
WGK class (Germany): 1
On ingredients: See heading information on ingredients
LC50 72h Algue (mg/l): No data available.

13 DISPOSAL CONSIDERATIONS
Waste Information: Removing of residues – Removal as waste according to local and national prescriptions. Polluted Packaging – Removal as waste according to local and national prescriptions.
Provisions relating to waste: Waste material code (75/442/EEC, Council Decision 2001/118/EC, O.J. L47 OF 16/25/2001): 06 03 14 (solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13). LWCA (the Netherlands): KGA category 01. Hazardous waste (91/689/EEC).
Disposal methods: Immobilize the toxic or harmful components. Precipitate/make insoluble. Remove to an authorized dump (Class I). Treat using the best available techniques before discharge into drains or the aquatic environment.
Packaging/Container: Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10* (packaging containing residues of or contaminated by dangerous substances).

14 TRANSPORT INFORMATION not restricted for any mode of international transport
ADR
UN-number: n.a.
Proper shipping name
ADR Class / Packing group
IATA/ICAO
UN-number: n.a.
Proper shipping name
IATA Class / Packing group
IMDG
UN-number: n.a.
Proper shipping name
IMO Class / Packing group

15 REGULATORY INFORMATION
Labeling Marks According to EC-Directives 67/548/EECs
Recognition Numbers and Hazard Symbols:

(o) Oxidizing (Xi) Harmful

Content:

R-Phrases:	**8**	Contact with combustible material may cause fire
	22	Harmful if swallowed
	36/37/38	Irritating to eyes, respiratory system and skin
	42/43	May cause sensitization by inhalation and skin contact.
S-Phrases:	**02**	Keep out of reach of children
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	37/39	Wear suitable gloves and eye/face protection
	46	If swallowed, seek medical advice immediately and show this container or label

The Netherlands: Waterbezwaarlijkheid 1
Germany: WGK 1

16 OTHER INFORMATION
This safety data sheet has been drawn up in accordance with THE REACH-ENACTMENT (EG) nr. 1907/2006, art.31 appendix II. This safety data sheet is exclusively made for industrial/professional use.
Full text of any R phrases referred to under heading 3:

8	Contact with combustible material may cause fire
22	Harmful if swallowed
36/37/38	Irritating to eyes, respiratory system and skin
\42/43	May cause sensitization by inhalation and skin contact.
R41	Risk of serious damage to eyes

Sources of key data used: The information contained herein is based on the present state of our knowledge.

Material Safety Data Sheet
eOx International b.v.

1 PRODUCT NAME: EOXIDE LQ 75 - 0.75% CLO2
Product Code:
Purpose: Chemical Component ClO2
Registration Number : N- 40741
Manufacturer Identification: Manufactured by:eOx International bv
1e Lulofsdwarsstraat 117, 2521 AZ,
The Hague, The Netherlands
Tel: +31 703 807 376 Fax :+31 703 841 476
E-mail: info@eox-international.com

2 HAZARDS INFORMATION / RISKS

Harmful effects on health Irritating to eyes and skin

Direct contact with Chlorine Dioxid causes eye and skin irritation. Inhalation of Chlorine Dioxid may cause respiratory tract irritation, coughing, wheezing and burns of the mucous membranes. Inhalation of large amounts may lead to pulmonary edema and bronchitis.

3 COMPOSITION/INFORMATION ON ELEMENTS
Hazardous components:
Chlorine dioxide, solution **% Weight** 0.3 - <3
CAS-nr 10049-04-4
EC-nr 233-162-8
R-wording 25-34-50 (1)(2)
Symbol T; N
Full text of each relevant R phrase can be found in heading 16

4 FIRST AID MEASURES
General indications: In event of serious problems call a doctor summon medical assistance urgently
After Inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service
After Skin Contact: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists
After Eye Contact: Rinse immediately with plenty of water. Take victim to an ophthalmologist
After Ingestion: Rinse mouth with water
Emergency medical treatment: Immediately give lots of water to drink

5 FIRE FIGHTING MEASURES
Suitable Extinguishing Media: Non combustible product
All extinguishing media can be used. Use extinguishing media appropriate for surrounding fire. Use water stream to cool containers
Special exposure hazards: On burning formulation of small quantities of hydrogen chloride
Protection against fire: Evacuate unnecessary personnel. Wear proper protective equipment. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves
Special procedures: Exercise caution when fighting any chemical fire

6 ACCIDENTAL SPILL OR RELEASE MEASURES
Personal Precautions: See heading 8.2/13
Environmental Precautions: Prevent entry to public water, sewers or soil. Notify authorities if product enters sewer or public waters.
After spillage/leakage: Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Take up liquid spill into inert absorbent material. Flush with plenty of water
Recovery on soil: Stop the spillage, if possible without risk for the workforce. Dike for recovery or absorb with appropriate material. Sweep or shovel spills into appropriate container for disposal

7 HANDLING AND STORAGE
Technical measures: Handle in accordance with good industrial hygiene and safety procedures
Prevention of worker exposure: Ensure prompt removal from eyes, skin and clothing.
Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work
Storage recommended: Provide local exhaust or general room ventilation to minimize dust and/or vapor concentrations.Keep containers closed when not in use. Keep only in the original container in a cool, well ventilated place
Incompatible materials: Acids, bases, oxidizing agents, heat sources
Packaging materials recommended: Polyethylene, plastics, (Small quantities: Glass)
Packaging materials NOT recommended: Steel, Copper, Copper and its alloys, Aluminum and its alloys, Rubber

8 EXPOSURE CONTROLS / PERSONAL PROTECTION
Respiratory protection : Wear gas mask with filter type B if conc. in air > exposure limit

CHLORINE DIOXIDE, solution

TLV-TWA:	mg/m3 0.1 ppm
TLV-STEL:	mg/m3 0.3 ppm
TLV-Ceiling:	mg/m3 ppm
WEL-LTEL:	0.28 mg/m3 0.1 ppm
WEL-STEL:	0.84 mg/m3 0.3 ppm
TRGS 900:	0.28 mg/m³ 0.1 ppm
MAK:	0.28 mg/m3 0.1 ppm
MAC-TGG 8 h:	mg/m3
MAC-TGG 15 min.:	0.3 mg/m3
MAC-Ceiling:	mg/m3
VME-8 h:	0.3 mg/m3 0.1 ppm
VLE-15 min.:	0.8 mg/m3 0.3 ppm
GWBB-8 h:	0.28 mg/m3 0.1 ppm
GWK-15 min.:	0.84 mg/m3 0.3 ppm
Momentary value:	mg/m3 ppm
EC:	mg/m3 ppm
EC-STEL:	mg/m3 ppm

Occupational exposure controls: Measure the concentration in the air regularly.
Work under local exhaust/ventilation
Personal protective equipment:
a) Respiratory protection: Wear gas mask with filter type B if conc. in air > exposure limit.
b) Hand protection: Gloves. - Suitable materials: GIVE GOOD RESISTANCE: Butyl rubber, Neoprene, PVC. Breakthrough time: N.D.
c) Eye protection: Safety glasses
d) Skin protection: Protective clothing - Suitable materials: GIVE GOOD RESISTANCE: Butyl rubber, Neoprene, PVC.
8.2.2 Environmental exposure controls: see headings 6.2, 6.3 and 13
Industrial Hygiene: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure. Ensure prompt removal from eyes, skin and clothing

9 PHYSICAL/CHEMICAL PROPERTIES
9.1 General information: Appearance (at 20°): Liquid
Odour: Irritating / pungent
Olour: Yellow
9.2 Important health, safety and environmental information:

pH value (at100 %):	1.87 (100%, concentrate, 20°C).
Boiling point/boiling range:	N.D.
Flash point/flammability:	100 ° C
Explosion limits (explosive properties):	
Oxidising properties:	N.A.
Vapour pressure (at 20°C):	N.A.
Vapour pressure (at 50°C):	N.A.
Relative density at 20°C):	+/- 1,04
Water solubility:	1
Soluble in:	No data available
Relative vapour density:	N.D.
Viscosity:	N.D.
Partition coefficient n-octanol/water:	N.D.
Evaporation rate:	N.D.
ratio to butyl acetate:	N.D.
ratio to ether:	N.D.

10 STABILITY AND REACTIVITY
Stability and Reactivity: Product is stable under normal temperature and pressures.
Store away from heat/moisture
Hazardous reactions: On burning formation of small quantities of hydrogen chloride. Hazardous **Decomposition Products:** On burning formation of small quantities of hydrogen chloride. Thermal decomposition generates: chlorine dioxide, chlorates.
Conditions to Avoid: Temperature not exceeding 50°C. Store away from heat/moisture
Materials to avoid: Acids, Organic compounds, Combustibles, oil reducing agents

11 TOXICOLOGICAL INFORMATION
Acute Toxicity:
Rat oral LD50 (mg/kg): 292 mg/kg
Rabbit dermal LD50 (mg/kg): N.D.
Rabbit dermal LD50: Moderate irritant to skin
Rat inhalation LC50: 500 ppm/15 min. Note: This refer to ppm in air NOT in solution
Chronic toxicity Ingestion: N.D.
Carcinogenicity: Not listed in carcinogenicity class (IRAC, EC, TLV, MAK)
Tetratogenicity: Not listed in mutagenicity class (EC,MAK), Not classified as toxic to reproduction (EC)

12 ECOLOGICAL INFORMATION
Ecotoxicity: LC 50 Fathead minnow adult 0.17 mg/l/96 hrs. LC 50 Bluegill young of the year 0.15 mg/l/96 hrs.
Mobility: N.A.
Effect on waste water purification: N.A.
Volatile organic compounds (VOC): Soluble in water, for other physicochemical properties see heading 9
Persistence and degradability biodegradation BOD5: N.A.
Water: No data available
Soil: N.D.
Bioaccumulative potential log Pow: N.A.
BCF: N.D.
Results of PBT assessment: Not applicable, based on available data
Other adverse effects: WGK 1. Not dangerous for the ozone layer (Council Regulation (EC) No 2037/2000 O.J. L244

13 DISPOSAL CONSIDERATIONS
Waste material code (91/689/EEC, Council Decision 2001/118/EC O.J. L47. LWCA : KGA category 01 (the Netherlands). Hazardous waste (91/689/EEC).
Waste Information: Removing of residues – Removal as waste according to local and national prescriptions. Polluted Packaging – Removal as waste according to local and national prescriptions
Treatment of dirty packaging: After last use, the packaging should be totally empty and closed. The used packing is only suitable for the packing of this product. When the packing is consigned, it should be brought back by the supplier.

14 TRANSPORT INFORMATION: Chlorine dioxide may not be shipped as gas or solution
ADR: Not applicable – shipment Forbidden
UN-number:
Proper shipping name
ADR Class / Packing group
IATA/ICAO: Not applicable – shipment Forbidden
UN-number:
Proper shipping name:
IATA Class / Packing group :
IMDG: Not applicable – shipment Forbidden
UN-number
Proper shipping name
IMO Class / Packing group :

15 REGULATORY INFORMATION
Labeling Marks According to EC-Directives 67/548/EECs
Recognition Numbers and Hazard Symbols
n.a. Irritant
Content:

R-Phrases:	**36/38**	Irritating to eyes and skin
S-Phrases:	**2**	Keep out of reach of children
	23	Do not breath gas/fumes/vapour/spray
	46	If swallowed, seek medical advice immediately and show this container or label

National provisions: The Netherlands: Waterbezwaarlijkheid: 9, Germany: WGK : 1 (Classification based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)

16 OTHER INFORMATION
This safety data sheet has been drawn up in accordance with THE REACH-ENACTMENT (EG) nr. 1907/2006, art.31 appendix II. This safety data sheet is exclusively made for industrial/professional use.
Full text of any R phrases referred to under heading 2:

R25	Toxic if swallowed
R34	Causes burns

Sources of key data used: The information contained herein is based on the present state of our knowledge.

Material Safety Data Sheet
eOx International b.v.

1 PRODUCT NAME: EOXIDE LQ 75 - 0.75% CLO2
Product Code:
Purpose: Chemical Component ClO2
Registration Number : N- 40741
Manufacturer Identification: Manufactured by:eOx International bv
1e Lulofsdwarsstraat 117, 2521 AZ,
The Hague, The Netherlands
Tel: +31 703 807 376 Fax :+31 703 841 476
E-mail: info@eox-international.com

2 HAZARDS INFORMATION / RISKS

Harmful effects on health Irritating to eyes and skin

Direct contact with Chlorine Dioxid causes eye and skin irritation. Inhalation of Chlorine Dioxid may cause respiratory tract irritation, coughing, wheezing and burns of the mucous membranes. Inhalation of large amounts may lead to pulmonary edema and bronchitis.

3 COMPOSITION/INFORMATION ON ELEMENTS
Hazardous components:
Chlorine dioxide, solution **% Weight** 0.3 - <3
CAS-nr 10049-04-4
EC-nr 233-162-8
R-wording 25-34-50 (1)(2)
Symbol T; N
Full text of each relevant R phrase can be found in heading 16

4 FIRST AID MEASURES
General indications: In event of serious problems call a doctor summon medical assistance urgently
After Inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service
After Skin Contact: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists
After Eye Contact: Rinse immediately with plenty of water. Take victim to an ophthalmologist
After Ingestion: Rinse mouth with water
Emergency medical treatment: Immediately give lots of water to drink

5 FIRE FIGHTING MEASURES
Suitable Extinguishing Media: Non combustible product
All extinguishing media can be used. Use extinguishing media appropriate for surrounding fire. Use water stream to cool containers
Special exposure hazards: On burning formulation of small quantities of hydrogen chloride
Protection against fire: Evacuate unnecessary personnel. Wear proper protective equipment. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves
Special procedures: Exercise caution when fighting any chemical fire

6 ACCIDENTAL SPILL OR RELEASE MEASURES
Personal Precautions: See heading 8.2/13
Environmental Precautions: Prevent entry to public water, sewers or soil. Notify authorities if product enters sewer or public waters.
After spillage/leakage: Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Take up liquid spill into inert absorbent material. Flush with plenty of water
Recovery on soil: Stop the spillage, if possible without risk for the workforce. Dike for recovery or absorb with appropriate material. Sweep or shovel spills into appropriate container for disposal

7 HANDLING AND STORAGE
Technical measures: Handle in accordance with good industrial hygiene and safety procedures
Prevention of worker exposure: Ensure prompt removal from eyes, skin and clothing.
Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work
Storage recommended: Provide local exhaust or general room ventilation to minimize dust and/or vapor concentrations.Keep containers closed when not in use. Keep only in the original container in a cool, well ventilated place
Incompatible materials: Acids, bases, oxidizing agents, heat sources
Packaging materials recommended: Polyethylene, plastics, (Small quantities: Glass)
Packaging materials NOT recommended: Steel, Copper, Copper and its alloys, Aluminum and its alloys, Rubber

8 EXPOSURE CONTROLS / PERSONAL PROTECTION
Respiratory protection : Wear gas mask with filter type B if conc. in air > exposure limit
CHLORINE DIOXIDE, solution

TLV-TWA:	mg/m3 0.1 ppm
TLV-STEL:	mg/m3 0.3 ppm
TLV-Ceiling:	mg/m3 ppm
WEL-LTEL:	0.28 mg/m3 0.1 ppm
WEL-STEL:	0.84 mg/m3 0.3 ppm
TRGS 900:	0.28 mg/m³ 0.1 ppm
MAK:	0.28 mg/m3 0.1 ppm
MAC-TGG 8 h:	mg/m3
MAC-TGG 15 min.:	0.3 mg/m3
MAC-Ceiling:	mg/m3
VME-8 h:	0.3 mg/m3 0.1 ppm
VLE-15 min.:	0.8 mg/m3 0.3 ppm
GWBB-8 h:	0.28 mg/m3 0.1 ppm
GWK-15 min.:	0.84 mg/m3 0.3 ppm
Momentary value:	mg/m3 ppm
EC:	mg/m3 ppm
EC-STEL:	mg/m3 ppm

Occupational exposure controls: Measure the concentration in the air regularly. Work under local exhaust/ventilation
Personal protective equipment:
a) Respiratory protection: Wear gas mask with filter type B if conc. in air > exposure limit.
b) Hand protection: Gloves. - Suitable materials: GIVE GOOD RESISTANCE: Butyl rubber, Neoprene, PVC. Breakthrough time: N.D.
c) Eye protection: Safety glasses
d) Skin protection: Protective clothing - Suitable materials: GIVE GOOD RESISTANCE: Butyl rubber, Neoprene, PVC.
8.2.2 Environmental exposure controls: see headings 6.2, 6.3 and 13
Industrial Hygiene: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure. Ensure prompt removal from eyes, skin and clothing

9 PHYSICAL/CHEMICAL PROPERTIES
9.1 General information: Appearance (at 20°): Liquid
Odour: Irritating / pungent
Olour: Yellow
9.2 Important health, safety and environmental information:

pH value (at100 %):	1.87 (100%, concentrate, 20°C).
Boiling point/boiling range:	N.D.
Flash point/flammability:	100 ° C
Explosion limits (explosive properties):	
Oxidising properties:	N.A.
Vapour pressure (at 20°C):	N.A.
Vapour pressure (at 50°C):	N.A.
Relative density at 20°C):	+/- 1,04
Water solubility:	1
Soluble in:	No data available
Relative vapour density:	N.D.
Viscosity:	N.D.
Partition coefficient n-octanol/water:	N.D.
Evaporation rate:	N.D.
ratio to butyl acetate:	N.D.
ratio to ether:	N.D.

10 STABILITY AND REACTIVITY
Stability and Reactivity: Product is stable under normal temperature and pressures. Store away from heat/moisture
Hazardous reactions: On burning formation of small quantities of hydrogen chloride. Hazardous **Decomposition Products:** On burning formation of small quantities of hydrogen chloride Thermal decomposition generates: chlorine dioxide, chlorates.
Conditions to Avoid: Temperature not exceeding 50°C. Store away from heat/moisture
Materials to avoid: Acids, Organic compounds, Combustibles, oil reducing agents

11 TOXICOLOGICAL INFORMATION
Acute Toxicity:
Rat oral LD50 (mg/kg): 292 mg/kg
Rabbit dermal LD50 (mg/kg): N.D.
Rabbit dermal LD50: Moderate irritant to skin
Rat inhalation LC50: 500 ppm/15 min. Note: This refer to ppm in air NOT in solution
Chronic toxicity Ingestion: N.D.
Carcinogenicity: Not listed in carcinogenicity class (IRAC, EC, TLV, MAK)
Tetratogenicity: Not listed in mutagenicity class (EC,MAK), Not classified as toxic to reproduction (EC)

12 ECOLOGICAL INFORMATION
Ecotoxicity: LC 50 Fathead minnow adult 0.17 mg/l/96 hrs. LC 50 Bluegill young of the year 0.15 mg/l/96 hrs.
Mobility: N.A.
Effect on waste water purification: N.A.
Volatile organic compounds (VOC): Soluble in water, for other physicochemical properties see heading 9
Persistence and degradability biodegradation BOD5: N.A.
Water: No data available
Soil: N.D.
Bioaccumulative potential log Pow: N.A.
BCF: N.D.
Results of PBT assessment: Not applicable, based on available data
Other adverse effects: WGK 1. Not dangerous for the ozone layer (Council Regulation (EC) No 2037/2000 O.J. L244

13 DISPOSAL CONSIDERATIONS
Waste material code (91/689/EEC, Council Decision 2001/118/EC O.J. L47. LWCA : KGA category 01 (the Netherlands). Hazardous waste (91/689/EEC).
Waste Information: Removing of residues – Removal as waste according to local and national prescriptions. Polluted Packaging – Removal as waste according to local and national prescriptions
Treatment of dirty packaging: After last use, the packaging should be totally empty and closed. The used packing is only suitable for the packing of this product. When the packing is consigned, it should be brought back by the supplier.

14 TRANSPORT INFORMATION: Chlorine dioxide may not be shipped as gas or solution
ADR: Not applicable – shipment Forbidden
UN-number:
Proper shipping name
ADR Class / Packing group
IATA/ICAO: Not applicable – shipment Forbidden
UN-number:
Proper shipping name:
IATA Class / Packing group :
IMDG: Not applicable – shipment Forbidden
UN-number
Proper shipping name
IMO Class / Packing group :

15 REGULATORY INFORMATION
Labeling Marks According to EC-Directives 67/548/EECs
Recognition Numbers and Hazard Symbols

n.a. Irritant
Content:

R-Phrases:	**36/38**	Irritating to eyes and skin
S-Phrases:	**2**	Keep out of reach of children
	23	Do not breath gas/fumes/vapour/spray
	46	If swallowed, seek medical advice immediately and show this container or label

National provisions: The Netherlands: Waterbezwaarlijkheid: 9, Germany: WGK : 1 (Classification based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)

16 OTHER INFORMATION
This safety data sheet has been drawn up in accordance with THE REACH-ENACTMENT (EG) nr. 1907/2006, art.31 appendix II. This safety data sheet is exclusively made for industrial/professional use.
Full text of any R phrases referred to under heading 2:

R25	Toxic if swallowed
R34	Causes burns

Sources of key data used: The information contained herein is based on the present state of our knowledge.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the properties of the product. It is always the duty of users to determine the applicability of such information and recommendations and the suitability of any products for their own particular purpose.

Classical generated chiorine dioxide vs. Eoxide LQ 75 solution	
Classical generated chiorine dioxide	**Eoxide® LQ 75 solution**
1 Classical chlorine dioxide solution decays very fast when the concentration exceeds 0.5% and becomes explosive.	Eoxide ® LQ 75 is a solution that contains a 0.75% solution of chlorine dioxide and is therefore not explosive and has a long kinetic halftime (30 days).
2 Classical chlorine dioxide solution is diluted on the fly in the production process and concentrations may vary.	The balanced application of Eoxide® component A and Eoxide ® component B guarantees the 0.75% concentration (just restrict to the simple user directions on the packaging and the Material Safety Data Sheets).
3 Classical chlorine dioxide solution requires complicated and expensive equipment (reactors, mix systems etc.).	As the unique composition of Eoxide® Component A and Eoxide® component B contain all chemistry to generate the Eoxide ® LQ 0.75% solution NO equipment is required to generate the solution (only a standard PE-HD black tank is required to generate Eoxide LQ® 0.75% solution).
4 Toxic and impure chemical compounds are used to generate the classical chlorine dioxide solution.	The chemical compounds of Eoxide® Component A and Eoxide® Component B are certified and approved according to the highest purity and quality levels (including European Regulation EN 12671.
5 The general purity of classical chlorine dioxide solution is up to 65%.	The purity of Eoxide LQ® 0.75% solution is 99%.
6 Classical chlorine dioxide solution requires be generating on site and using immediately and has a kinetic halftime of only a few hours. This also implies that the residual function of classical chlorine dioxide solution is limited.	Eoxide® LQ 0.75% solution can be generated on site but can also be transported to a desired location. When the storage conditions in the Material Safety Data Sheet are respected the kinetic halftime is 30 days. This implies that a long residual function of Eoxide® LQ 0.75% solution can be achieved (up-to 72 hours in water distribution systems. This is MUCH LONGER than classical generated chlorine dioxide or chlorine.
7 Classical chlorine dioxide solution generated from liquid components decays very fast (unstable as in chemistry the quality of liquid is decreasing as time evolves thus continuous quality cannot be controlled).	Eoxide® LQ 0.75% solution is made from two liquid components (Eoxide® LQ75 Component A and Eoxide® LQ 75 Component B). The initial liquid is the most stabile form in chemistry and does not decay. eOx International B.V. guarantees a 2 year shelf life of the Eoxide® LQ 75 liquid components in the original unopened packaging when storage conditions are respected according to the Material Safety Data Sheets.
8 Classical chlorine dioxide solution must be applied immediately as it cannot be stored and has disappeared within a few hours..	As eOxide® LQ 0.75% solution has a kinetic halftime of 30 days it can be applied according to desired situations
9 Classical chlorine dioxide solution contains high levels of chlorite, chlorate, chloride and free chlorine and is therefore NOT pure.	Eoxide® LQ 0.75% solution contains 99% pure chlorine dioxide.
10 The free chlorine in classical chlorine dioxide solution implies the same by-products and side effects as known from chlorine who have proven in scientific research to cause cancer and stress on human health and the environment tremendously.	As Eoxide® 0.75% solution does NOT contain free chlorine when dosed into the water, the by-products and side effects of chlorine are NOT applicable to Eoxide® LQ 0.75% solution.
11 Classical chlorine dioxide leaves as rest products chlorite, chlorate, chlorides and free chlorine and forms a risk for human health (chlorite is very toxic to the human body) and stresses a load on the environment.	Eoxide® LQ 75 0.75% solution leaves as rest products sodium sulphate and sodium chloride (kitchen salt). These two rest products must be in water to cal) it drinking water and the contribution of the sodium sulphate and sodium chloride levels are NEGLIGIBLE.
12 Classical chlorine dioxide is very corrosive.	Eoxide® LQ 75 0.75% solution is NOT corrosive when dosed into the water only when the pH of the water is <4.

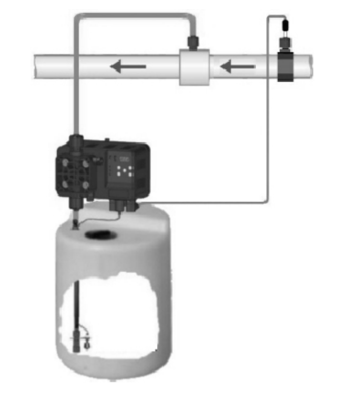
Dosering aanbevelings/ Recommended dosages

Aanbevole dosering 13.3 ml eoxide per 100 lit water /
Recommended dosage 13.3 ml eoxide per 100 lit water

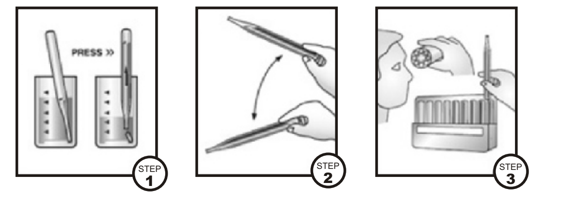
Vir reen water opvangs / Rain water harvesting
Use a plastic measuring cup
Dose at least 1000ml/1liter of ready eoxide in 5000lit tank of water
Use water after 72 hours of first dosage
After rain fall depending on tank level add 500 ml 1/2 liter of ready eoxide

Gebruik n plastiek maat beker
Doseer tenminste 1000ml/1liter eoxide in 5000 lit tenk met water
Gebruik water na 72 uur staan tyd
Na reënval doseer weer met 500 ml, 1/2lit aangemaakte eoxide

AUTOMATED DOSING AVAILABLE



TEST KITS AVAILABLE



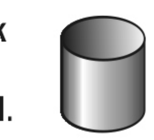
For small dosages use ordinary syringe
Gebruik gemerkte spuit vir klein hoeveelheid dosering

LARGER VOLUME KITS ARE EX STOCK
20 litre
100 litre
500 litre

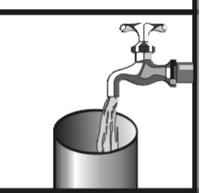
EOX TECHNOLOGIES.

PREPARATION OF EOXIDE (0,75%) 1 LITER

1 Take an clean empty dark container/tank of HDPE that can hold 1 liter liquid.



2 Fill the container with 850ml of tap water.



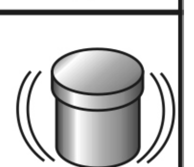
3 Add 50ml of EOXIDE component A to the 850 ml of water.

4 Add 100ml of EOXIDE component B to the 850 ml water.

5 Close the container.

6 Wait for minimum of 7 hours.

7 Gentley agitate contents in container



8 EOXIDE 0.75% ClO2 is ready for use.

Klante diens / Customer services
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