

SAFETY DATA SHEET

according to the Regulation (EC) No. 1907/2006 as amended

Trade name: Solvodic®

Date of print: 13/10/2019

Revision date: 11/10/2019

Version: 2.3. / EN

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier Solvodic®

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

Industrial and hospital disinfectant

1.3. Details of the supplier of the safety data sheet

Manufacturer and supplier:

Solumium Kft.

Address:

1118 Budapest, Rozmaring u. 19.

E-mail address for the competent person responsible for the safety data sheet: info@solumium.com and nosti@t-online.hu

Phone

+36-1-3194323 (8:00-16:00) +36-20-470-0597

1.4. Emergency telephone number

Emergency telephone number: <http://apps.who.int/poisoncentres/>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 (CLP): not classified

2.2. Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

No specific requirement.

2.3. Other hazards

The mixture does not meet persistent (P), bioaccumulation (B) and toxicity (T) criteria. The mixture is not PBT or vPvB.

SECTION 3: Composition/information on ingredients

Chemical characterization

Name	EC-Nr.	CAS-Nr.	REACH registration Nu	Content (%)	Classification according to 1272/2008 (CLP) ³	
					Hazard categories ¹	H-phrases ¹
Chlorine dioxide ...%	233-162-8	10049-04-4	Not available ²	≥0.3 <0.34 ³	Acute Tox.3* Skin Corr. 1B Aquatic Acute 1	H301 H314 H400

¹ – See Section 16 for the full text of the abbreviations declared above.

² – The manufacturing volume of the substance does not reach the limit for registration requirement

³ – Chlorine dioxide has been classified in 790/2009/EU which is the ATP 1 for the CLP regulation with a new index number 017-026-01-0. These classifications are shown above. Its concentration limits are given in the sections below.

*– so called minimum classification in the CLP regulation.

SECTION 4: First aid measures

4.1. Description of first aid measures

Immediately remove contaminated clothing.

If inhaled: Remove to fresh air and keep comfortable for breathing. Seek medical attention.

On skin contact: No need for any measures.

On contact with eyes: Wipe the lacing eye with a tissue paper. After a transient spicy sensation, symptoms disappear.

On ingestion: A single ingestion of a dilute solution containing less than 24 mg of chlorine dioxide does not pose an unacceptable risk. If a much larger quantity is swallowed, add 2-3 g of vitamin C (ascorbic acid)

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dissolved in a glass of water. The injured person should drink plenty of water. Do not induce vomiting. In case of complaints, seek medical advice.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: When inhaling large quantities, cough, pale skin, headache, difficulty breathing.

Effects of excessive exposure: Bronchitis, pneumonia, pulmonary edema.

Hazards: Symptoms occur immediately.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms.

SECTION 5: Firefighting measures

The product is not flammable, but as an oxidizer nourishes combustion.

5.1. Extinguishing media

Suitable extinguishing media: the same as for the source of the fire

5.2. Special hazards arising from the substance or mixture

When the solution is heated: Chlorine dioxide in the air.

5.3. Advice for firefighter

Special protective equipment: Wear ambient air-independent breathing apparatus and chemical protective clothing.

Further information: If exposed to fire remove containers or keep them cool by spraying with water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Respiratory protection should be used in the presence of vapours/fumes/spray.

6.2. Environmental precautions

Do not empty into drains. Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder).

Neutralize both collected solution and absorbent material with ascorbic acid. The resulting solution or material can be lowered into the drains or disposed, respectively.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

If Solvocid solution is used, an accident may occur only in the case of multiple conditions. A worst-case scenario is, for example, if more than one liter of 0.3% solution is poured out in a small room which is not ventilated, and ventilation and/or disposal will not be started after the spillage. In this case the Chlorine dioxide gas coming into the air slowly from the spillage may cause an accident. A similar situation may occur when higher than needed quantity of Solvocid solution is sprayed to disinfect a room.

If the concentration of chlorine dioxide in a locality exceeds the odour threshold for several minutes, it shall only be allowed to reside in a protective semi-facial mask with appropriate filter inserts (e.g. A1 B1 E1 K1).

Do not mix with other cleaning or disinfecting agents!

7.2. Conditions for safe storage, including any incompatibilities

Store tightly closed in a cool place, protected from direct sunlight.

Keep in the original sealed and properly labelled container. Keep out of the sight and reach of children.

Above 54°C the chlorine dioxide accumulated in the gas phase may decompose with bursting.

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7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

An occupational exposure level of 0.28 mg/m³ (0.1 ppmv) for 8 hours, and a short term of 0.84 mg/m³ (0.3 ppmv) have been assigned by OSHA. There is a DNEL value of 0.308 mg/m³ in the registration document for long term exposure. The PNEC value for fresh water is 0,021 µg/L.

8.2. Exposure controls

Respiratory protection: For normal usage not needed

Hand protection: Not needed

Eye protection: Not needed

Body protection: Not needed

General safety and hygiene measures:

Do not breathe vapour/spray. Apply ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Data refer to the product as a diluted aqueous solution if not stated otherwise.

- a) Appearance: liquid
- b) Color: yellow
- c) Odour: specific, similar to chlorine
- d) Odour threshold: 0.1 ppmv (pure chlorine dioxide)
- e) pH-value: 4,5-5,5
- f) Melting point/freezing point: 0°C
- g) Boiling range: no data
- h) Flash point: not flammable
- i) Evaporation rate: no data
- j) Flammability (solid, gaseous): not flammable
- k) Ignitable, explosive range: not flammable
- l) Vapour pressure: $P = c \cdot \exp(12.732 - 3102/T)$, where P is the vapor pressure of chlorine dioxide in Hgmm above a solution with a c concentration of chlorine dioxide in g/L, and T is the absolute temperature in Kelvin. Ishi, G. Chemical engineering (Japan) **22(3)** (1958)
- m) Vapour density: no data
- n) Density: 1,00 g/cm³
- o) Solubility: see the formula by Ishi above
- p) Partition coefficient n-octanol/water: no data
- q) Self-ignition temperature: not flammable
- r) Decomposition temperature: saturated vapor phase can decompose with a puff above 45 °C.
- s) Viscosity: same as water
- t) Explosive properties: chlorine dioxide can decompose with a puff in the gas phase if its concentration is above 10 % (v/v) there, and can detonate when its concentration is above 40 % (v/v), therefore accumulating chlorine dioxide above an aqueous solution shall be avoided.
- u) Oxidising properties: oxidising

9.2. Other information

Not applicable.

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SECTION 10: Stability and reactivity

10.1. Reactivity

Oxidising organic matter.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Under fire or when heated Solvocid solution evolves chlorine dioxide which is strong oxidizer.

10.4. Conditions to avoid

Under fire or when heated the product evolves gaseous chlorine dioxide which is toxic

10.5. Incompatible materials

Substance that can be oxidised.

10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological information

Information is related to pure chlorine dioxide. Specific concentration limits for the aqueous solutions of chlorine dioxide are given from the 1. ATP as well as from the registration document.

11.1. Information on toxicological effects

Acute toxicity – oral:

Rats

LD50 = 94 mg/kg

0.3-0.4 mg/kg chlorine dioxide when consumed by healthy adults caused no harmful effect. The 1. ATP classifies any aqueous solution as Acute Tox. 3. In the registration solutions of 0.6-2.0% are classified as Acute Tox. 3, however, according to the LD50 measured Solvocid solution need not to be classified as hazardous.

Acute toxicity – solution mist inhalation:

Rats

LC50 = 6830 mg/m³ (4h)

11.2. Irritation/Corrosion

Skin corrosion/Skin irritation: Aqueous solutions of $\geq 5\%$ are classified as Skin Corr. 1B, and those of $1\% \leq C < 5\%$ as Skin Irrit. 2 according to the 1. ATP. In the registration document solutions of 0.6-2% are considered as Skin Irrit. 2.

Eye damage/Irritation: Solutions of $3\% \leq C < 5\%$ are classified as Eye Dam. 1 and those of $0,3\% \leq C < 3\%$ as Eye Irrit. 2 according to the 1. ATP. In the registration document solutions of 0.6-2% are considered as irritative to eye, based, however, negative tests performed in more diluted, 10-20 ppm solutions. According to human experience gained for several years Solvocid is not irritative to eye and therefore, it need not to be classified as Eye Irrit. 2 with reference to Point 3.3.3.3.5 in the CLP regulation.

11.3. Sensitisation: Not classified based on animal and human experience.

11.4. Mutagenicity: Not classified. Based on available data, the classification criteria are not met.

11.5. Carcinogenity: Not classified. Based on available data, the classification criteria are not met.

11.6. Reproductive toxicity: Not classified. Based on available data, the classification criteria are not met.

11.7. STOT-single exposure: The pure chlorine dioxide is not classified, however, in the 1. ATP aqueous solutions of $\geq 3\%$ are classified as STOT SE 3.

11.8. STOT-repeated exposure: Not classified

11.9. Aspiration hazard: Not classified due to lack of data.

11.10. Toxicokinetics: No data.

11.11. Genetic toxicity: Not classified. Based on available data, the classification criteria are not met.

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SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity

Short-term toxicity to fish:

Danio rerio: LC50 = 0,021 mg/l (96 hours)

Based on the toxicity data the M factor is 10. Therefore, aqueous solutions more diluted than 2.5% are not classified as Aquatic Acute 1.

12.2. Persistence and degradability

In the original container the solution is stable; however, it degrades quickly in natural environment and under UV radiation.

12.3. Bioaccumulative potential

No data.

12.4. Mobility in soil

Chlorine dioxide as gas moves to the air and not to the soil.

12.5. Results of PBT and vPvB assessment

The product is not PBT neither vPvB.

12.6. Other adverse effects

No other effects are known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The products becoming useless and the contaminated containers not suitable for product storage must be decontaminated by ascorbic acid and then can be washed with water and reused. Cleaned containers need not to be considered as hazardous waste.

SECTION 14: Transport information

Land transport (ADR/RID/GGVSE)

Sea transport (IMGD-Code/GGVSee)

Air transport (ICAO-IATA/DGR)

- | | |
|--|---------------------------------|
| 14.1. UN number | Not dangerous goods |
| 14.2. UN proper shipping name | Not dangerous goods |
| 14.3. Transport hazard class(es) | Not dangerous goods |
| 14.4. Packaging group | Not dangerous goods |
| 14.5. Environmental hazards | Marine pollutant: no |
| 14.6. Special precautions for users | EmS number: Not dangerous goods |
| 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code | Not relevant. |

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislations specific for the substance or mixture

15.1. **Information regarding relevant Community safety, health and environmental provisions** Chlorine dioxide is listed as existing active biocid ingredient on the homepage of the European Commission.

15.2. **Chemical Safety Assessment** In accordance with REACH Chemical Safety Assessment has not been carried out for the substance by the supplier of the safety data sheet because it has not to be registered.

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SECTION 16: Other information

The information given corresponds with our actual knowledge and experience. This information is meant to describe our product in view of possible safety requirements.

16.1. Indication of changes: The measures for eye and skin exposure have been changed.

16.2. Abbreviations and acronyms:

Carc.: Carcinogenicity

CAS number: Chemical Abstracts Service number

CLP: Classification Labelling Packaging Regulation

CSR: Chemical Safety Report

DNEL: Derived No Effect Level

EC: European Commission

EC number: EINECS and ELINCS number

EC50: Half maximal effective concentration

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

Irrit.: Irritation

LC50: Lethal concentration, 50 %

LD50: Median Lethal dose

PBT: Persistent, Bioaccumulative and Toxic

PNEC: Predicted No Effect Concentration

REACH: The Registration, Evaluation, Authorization and Restriction of Chemicals

Resp.: Respiratory

Sens.: Sensitization

STOT: Specific Target Organ Toxicity

STOT SE: Specific target organ toxicity — single exposure

STOT RE: Specific target organ toxicity — repeated exposure

Tox.: Toxicity

vPvB: Very Persistent and Very Bioaccumulative

16.3. Key literature references and sources for data: 1. ATP, Adaptation to the Technical Progress of the CLP regulation. Registration document published on the website of the European Chemical Agency.

16.4. Full text of abbreviations

H- Phrases

H301	Toxic if swallowed
H314	Cause severe skin burns and eye damage
H400	Very toxic to aquatic life

Hazard classes

Acute Tox. 3	Acute Toxicity 3
Aquatic Acute	Hazardous to the aquatic environment
Eye Irrit. 2	Serious eye irritation 2
Skin Irrit. 1B	Skin irritation 1B
STOT SE 2	Specific target organ toxicity – single exposure 2