# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 27.10.2023 Version number 5 (replaces version 4) Revision: 27.10.2023

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

· **1.1 Product identifier**

· **Product name: COD / CSB 15-300 mg/l**

· **Catalog number:** 424994, 2423120, 2423120-A

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

· **Application of the substance / the preparation:** Reagent for water analysis

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**
Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com
phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom
phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**
e-mail: sds@lovibond.com
Product Safety Department

· **1.4 Emergency telephone number:**
+44 1235 239670
Languages: English

## SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**


GHS06 skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.


GHS08 health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.


GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.


GHS09 environment

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Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.


GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**


GHS05 GHS06 GHS08 GHS09

· **Signal word** Danger
· **Hazard-determining components of labelling:**
sulphuric acid 86 %
mercury sulphate
· **Hazard statements**
H290 May be corrosive to metals.
H302+H332 Harmful if swallowed or if inhaled.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P310 IF exposed or concerned: Immediately call a POISON CENTER/doctor.
P405 Store locked up.

· **2.3 Other hazards**
Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.
Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.
CAS 7783-35-9: Danger by skin resorption.

· **Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **Determination of endocrine-disrupting properties**
The product does not contain substances with endocrine disrupting properties.

## SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** sulfuric acid solution
· **Dangerous components:**
The percent content of the chromium compound mentioned below refers to the amount of chromate ions dissolved in water.
The percent content of the mercury compound mentioned below refers to the amount of the pure mercury therein.

| | | |
|---|---|---|
| CAS: 7664-93-9<br>EINECS: 231-639-5<br>Index No: 016-020-00-8<br>Reg.nr.: 01-2119458838-20-XXXX | sulphuric acid<br>Met. Corr.1, H290; Skin Corr. 1A, H314<br>Specific concentration limits: Skin Corr. 1A; H314: C ≥ 15 %<br>Skin Irrit. 2; H315: 5 % ≤ C < 15 %<br>Eye Dam. 1; H318: C ≥ 15 %<br>Eye Irrit. 2; H319: 5 % ≤ C < 15 % | 80–90% |

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| | | |
|---|---|---|
| CAS: 7783-35-9<br>EINECS: 231-992-5<br>Index No: 080-002-00-6 | mercury sulphate<br>Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Acute 1, H400 (M=1); Aquatic Chronic 1, H410 (M=1)<br>Specific concentration limit: STOT RE 2; H373: C ≥ 0.1 % | 0.25–<2.5% |
| CAS: 10294-26-5<br>EINECS: 233-653-7 | disilver(1+) sulfate<br>Eye Dam. 1, H318; Aquatic Acute 1, H400 (M=1000); Aquatic Chronic 1, H410 (M=100) | 0.25–<1% |
| CAS: 7778-50-9<br>EINECS: 231-906-6<br>Index No: 024-002-00-6<br>Reg.nr.: 01-2119454792-32-XXXX | potassium dichromate<br>Ox. Sol. 2, H272; Acute Tox. 3, H301; Acute Tox. 2, H330; Resp. Sens. 1, H334; Muta. 1B, H340; Carc. 1B, H350; Repr. 1B, H360FD; STOT RE 1, H372; Skin Corr. 1B, H314; Aquatic Acute 1, H400 (M=1); Aquatic Chronic 1, H410 (M=1); Acute Tox. 4, H312; Skin Sens. 1, H317<br>Specific concentration limit: STOT SE 3; H335: C ≥ 5 % | <0.1% |

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information**
Personal protection for the First Aider!
Instantly remove any clothing soiled by the product.
· **After inhalation**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness bring patient into stable side position for transport.
· **After skin contact**
Wash with polyethylene glycol 400 and then rinse with copious amounts of water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
· **After eye contact**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Do not induce vomiting; instantly call for medical help.
· **4.2 Most important symptoms and effects, both acute and delayed:**
burns
allergic reactions
absorption
after inhalation:
coughing
breathing difficulty
asthma attacks
damage to the affected mucous membranes
after swallowing:
strong caustic effect.
sickness
vomiting
bloody diarrhoea
pain
cramps
after absorption:
unconsciousness
CNS disorders
methaemoglobin formation
· **Danger**
Danger of system failure.
Danger of gastric perforation.
Danger of pulmonary oedema.
· **4.3 Indication of any immediate medical attention and special treatment needed:**
If swallowed or in case of vomiting, danger of entering the lungs
Subsequent observation for pneumonia and pulmonary oedema
Symptoms of poisoning may even occur after several hours.


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## SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** $CO_2$, extinguishing powder or water spray jet. Fight larger fires with water spray jet.
· **For safety reasons unsuitable extinguishing agents**
Water with a full water jet.
--> exothermic reaction
· **5.2 Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
Sulphur oxides (SOx)
mercury vapours
chromium trioxide
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

## SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
· **Advice for emergency responders:** Protective equipment: see section 8

· **6.2 Environmental precautions:**
Do not allow product to reach sewage system or water bodies.
Prevent material from reaching sewage system, holes and cellars.
Inform respective authorities in case product reaches water or sewage system.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Use neutralising agent.
Neutralize with diluted sodium hydroxide solution.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as waste according to item 13.
· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

## SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
· **Advice on safe handling:**
Open and handle container with care.
Work only in fume cupboard.
Prevent formation of aerosols.
· **Hygiene measures:**
Do not inhale gases / fumes / aerosols.
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke when using this product.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and containers:**
Store in cool location.

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Keep only in original packaging.

· **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with alkalis (caustic solutions).
Store away from flammable substances.

· **Further information about storage conditions:**
Store in a locked cabinet or with access restricted to technical experts or their assistants.
Keep container tightly sealed.
Protect from heat and direct sunlight.
Protect from the effects of light.
Protect from humidity and keep away from water.

· **Recommended storage temperature:** 20°C +/- 5°C

· **7.3 Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

| · **Components with limit values that require monitoring at the workplace:** | |
|---|---|
| **CAS: 7664-93-9 sulphuric acid** | |
| WEL (Great Britain) | Long-term value: 0.05* mg/m³<br>*mist: defined as thoracic fraction |
| IOELV (European Union) | Long-term value: 0.05 mg/m³ |
| **CAS: 7783-35-9 mercury sulphate** | |
| WEL (Great Britain) | Long-term value: 0.02 mg/m³<br>as Hg |
| BOELV (European Union) | Long-term value: 0.02 mg/m³<br>as Hg |
| IOELV (European Union) | Long-term value: 0.02 mg/m³<br>as Hg |
| **CAS: 10294-26-5 disilver(1+) sulfate** | |
| WEL (Great Britain) | Long-term value: 0.01 mg/m³<br>as Ag |

· **Regulatory information**
WEL (Great Britain): EH40/2020
IOELV (European Union): (EU) 2019/1831
BOELV (European Union): EU 2022/431

· **Additional information:** IOELV = Indicative Occupational Exposure Limit

· **DNELs**
Derived No Effect Level (DNEL)

| **CAS: 7664-93-9 sulphuric acid** | | |
|---|---|---|
| Inhalative | DNEL | 0.1 mg/m³ (Worker / acute / local effects) |
| | | 0.05 mg/m³ (Worker / acute / systemic effects) |

· **Recommended monitoring procedures:**
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

· **PNECs**
Predicted No Effect Concentration (PNEC)

| **CAS: 7664-93-9 sulphuric acid** | |
|---|---|
| PNEC | 8.8 mg/l (Sewage treatment plant) |
| | 0.00025 mg/l (Marine water) |
| | 0.0025 mg/l (Fresh water) |
| PNEC | 0.002 mg/kg (Marine sediment) |
| | 0.002 mg/kg (Fresh water sediment) |

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· **Ingredients with biological limit values:**

| **CAS: 7783-35-9 mercury sulphate** | |
|---|---|
| BMGV (Great Britain) | 20 µmol/mol creatinine<br>Medium: urine<br>Sampling time: random<br>Parameter: mercury |

· **Regulatory information** BMGV (Great Britain): EH40/2011

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.

· **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Eye/face protection**
Tightly sealed safety glasses.
Face protection
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
· **Hand protection**
Acid resistant gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
· **Material of gloves**
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.3 mm
· **Penetration time of glove material**
Value for the permeation: Level = 1 ( < 10 min )
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Other skin protection (body protection):** Acid resistant protective clothing
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Combination filter B-P2

· **Environmental exposure controls**
Avoid release to the environment.
Do not allow product to reach sewage system or water bodies.

## SECTION 9: Physical and chemical properties

| | |
|---|---|
| · **9.1 Information on basic physical and chemical properties** | |
| · **Physical state** | Fluid |
| · **Form:** | Solution |
| · **Colour:** | Orange |
| · **Odour:** | Recognisable |
| · **Odour threshold:** | Not determined. |
| · **Melting point/Freezing point:** | Not determined. |
| · **Boiling point or initial boiling point and boiling range** | Not determined. |
| · **Flammability** | Not applicable. |
| · **Explosive properties:** | Product is not explosive. |
| · **Lower and upper explosion limit** | |
| **Lower:** | Not applicable. |
| **Upper:** | Not applicable. |
| · **Flash point:** | Not applicable. |
| · **Auto-ignition temperature:** | Not applicable. |
| · **Decomposition temperature:** | Not determined. |
| · **pH at 20°C** | <1<br>Strongly acidic |
| · **Kinematic viscosity** | Not determined. |
| · **Solubility** | |
| · **Water:** | Fully miscible |

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| | |
|---|---|
| · **Partition coefficient n-octanol/water (log value)** | Not applicable (mixture). |
| · **Vapour pressure:** | Not determined. |
| · **Density and/or relative density** | |
| · **Density at 20°C:** | 1.82 g/cm³ |
| · **Relative density:** | Not determined. |
| · **Relative gas density** | Not determined. |
| · **Particle characteristics** | Not applicable (liquid). |

· **9.2 Other information**

| | |
|---|---|
| · **Information with regard to physical hazard classes** | |
| · **Corrosive to metals** | May be corrosive to metals. |
| · **Metals that are corroded by the substance or mixture** | Information on incompatible materials can be found in Sections 7 and 10. |
| · **Other safety characteristics** | |
| · **Oxidising properties:** | CAS 7664-93-9 :<br>Oxidising potential |
| · **Additional information** | |
| · **Solids content:** | < 2.5 % |
| · **Solvent content:** | |
| · **Organic solvents:** | 0 % |
| · **Water:** | < 20 % |

## SECTION 10: Stability and reactivity

· **10.1 Reactivity** see section 10.3
· **10.2 Chemical stability** Stable at ambient temperature (room temperature).
· **10.3 Possibility of hazardous reactions**
Reacts with metals forming hydrogen (Danger of explosion in case of large amounts!)
Corrosive action on metals
When diluting, always add acid to water, never vice versa
Diluting or dissolving in water always causes rapid heating
Reacts with acids, alkalis and oxidizing agents
Reacts with reducing agents
Reacts with peroxides
Reacts with halogenated compounds
Reacts with ammonia ($NH_3$).
· **10.4 Conditions to avoid** strong heating
· **10.5 Incompatible materials:**
metals
combustible substances
organic solvents
organic substances
· **10.6 Hazardous decomposition products:** see section 5

## SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity**
Classification according to calculation procedure:
Harmful if swallowed or if inhaled.
Toxic in contact with skin.

· **Acute toxicity estimate ($ATE_{(MIX)}$) - Calculation method:**

| | | |
|---|---|---|
| Oral | CLP $ATE_{(MIX)}$ | 464 mg/kg (.) |
| Dermal | CLP $ATE_{(MIX)}$ | 464 mg/kg (.) |
| Inhalative | CLP $ATE_{(MIX)}$ | 4.6 mg/l/4h (aerosol (dust, mist)) |

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· **LD/LC50 values that are relevant for classification:**

| | | |
|---|---|---|
| **CAS: 7664-93-9 sulphuric acid** | | |
| Oral | LD50 | 2140 mg/kg (rat)<br>(IUCLID) |
| Inhalative | LC 50 | 510 mg/m³/2h (rat)<br>IUCLID |
| **CAS: 7783-35-9 mercury sulphate** | | |
| Oral | LD50 | 5 mg/kg (ATE) |
| | LD50. | 57 mg/kg (rat)<br>(RTECS) |
| Dermal | LD50 | 5 mg/kg (ATE) |
| | LD50. | 625 mg/kg (rat) |
| Inhalative | LC50/4h | 0.05 mg/l (ATE) |
| **CAS: 10294-26-5 disilver(1+) sulfate** | | |
| Oral | LD50 | >5000 mg/kg (rat) (OECD 401)<br>(Registrant, ECHA) |
| **CAS: 7778-50-9 potassium dichromate** | | |
| Oral | LD50 | 90.5 mg/kg (rat) (OECD 401)<br>(ECHA, registrant: LD50 = 90.5 mg/kg female to 168.0 mg/kg male) |
| | LDLo | 26 mg/kg (child) |
| | | 143 mg/kg (man) |
| Dermal | LD50 | 1170 mg/kg (rat)<br>(IUCLID) |
| Inhalative | LC50/4h | 0.094 mg/l (rat) (OECD 403, Aerosol) |
| | LD50 IPR | 28 mg/kg (rat) |

· **Skin corrosion/irritation** Causes severe skin burns and eye damage.
· **Serious eye damage/irritation**
Causes serious eye damage.
Risk of blindness!

· **Information on components:**

| | | |
|---|---|---|
| **CAS: 10294-26-5 disilver(1+) sulfate** | | |
| Irritation of skin | OECD 404 | (rabbit: no irritation) |
| Irritation of eyes | OECD 405 | (rabbit: burns) |
| **CAS: 7778-50-9 potassium dichromate** | | |
| Irritation of skin | OECD 404 | (rabbit: irritation) |

· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **Information on components:**
CAS 7783-35-9: Sensitizing effect by skin contact is possible by prolonged/repeated exposure.
CAS 7778-50-9: Sensitizing effect by inhalation and skin contact is possible by prolonged exposure.

| | | |
|---|---|---|
| **CAS: 7778-50-9 potassium dichromate** | | |
| Sensitisation | Patch test (human) | (positive)<br>(IUCLID) |

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.

· **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
· **STOT (specific target organ toxicity) -repeated exposure**
May cause damage to organs through prolonged or repeated exposure.

· **Aspiration hazard** Based on available data, the classification criteria are not met.

· **Information on likely routes of exposure**
The intake of sulfuric acid is mainly to be expected via the inhalative pathway in the form of aerosols. No studies on absorbability are available.
Generally, local reactions cause the main effects.
Following impact to the skin strong local effects are the main issue. There is no indication of absorption of relevant amounts of S. via the intact skin.
Absorbability via the gastrointestinal tract is assumed. However, no studies on the kinetics of uptake are available. [GESTIS]

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The main intake route for mercury(II) sulfate is probably via the respiratory tract. Exposure is mainly possible to dusts and aerosols [GESTIS]

· **Additional toxicological information:**
Mercury compounds have a cytotoxic and protoplasmatoxic effect.
The principal signs manifest themselves in the CNS.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of aerosols may cause lung oedema.

| **CAS: 7664-93-9 sulphuric acid** |
|---|
| . (source: GESTIS)<br>Main toxic effects<br>Acute: Irritation up to chemical burns to the mucous membranes and skin, danger of serious damage to the eyes and lungs<br>Chronic: Irritation to the eyes and airways, erosion of the teeth, damage to the skin<br><br>Further Information:<br>Concentrated S. differs considerably from dilute Sulfuric acid with regard to chemical properties and effects. With increased dilution Sulfuric acid acts less aggressively. |
| **CAS: 7783-35-9 mercury sulphate** |
| . (source: GESTIS)<br>Main toxic effects:<br>acute: irritant to corrosive effect on mucous membranes and skin, skin-sensitizing potential, damage to the airways and lungs, gastrointestinal complaints, circulatory disorders, kidney dysfunction<br>chronic: skin and mucous membrane damage, kidney damage<br><br>STOT: the use of mercury nitrate in ointments as an antiparasitic ingredient and experiments on rats (repeated high oral doses) have shown that the kidneys are the most sensitive target organ. |

· **11.2 Information on other hazards**
· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **Other information**
Other dangerous properties can not be excluded.
According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

## SECTION 12: Ecological information

· **12.1 Toxicity**

| · **Aquatic toxicity:** | |
|---|---|
| **CAS: 7664-93-9 sulphuric acid** | |
| EC50 | >100 mg/l/48h (Daphnia magna) (OECD 202)<br>(ECHA) |
| LC50 | 16–29 mg/l/96h (bluegill)<br>(Merck) |
| **CAS: 7783-35-9 mercury sulphate** | |
| LC50 | 0.5 mg/l/48h (gold orfe) |
| EC50 | 0.005–3.6 mg/l/48h (Daphnia magna) |
| LC50 | 0.19 mg/l/96h (fathhead minnow) |
| **CAS: 10294-26-5 disilver(1+) sulfate** | |
| EC50 | 0.00022 mg/l/48h (Daphnia magna)<br>(ECHA) |
| EC10 | 0.00214 mg/l (Daphnia magna) (ASTM)<br>( ECHA: 21d, test substance: $AgNO_3$) |
| | 0.00017 mg/l (rainbow trout)<br>ECHA |
| | 0.00039 mg/l (fathhead minnow) (ASTM E1241-98)<br>(28d, test substance: $AgNO_3$, result in mg/l Ag) |
| | 0.00041 mg/l /24h (Pseudokirchneriella subcapitata)<br>ECHA |
| LC50 | 0.0012 mg/l/96h (fathhead minnow)<br>US-EPA |

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| CAS: 7778-50-9 potassium dichromate | |
|---|---|
| EC50 | 0.62 mg/l/48h (Daphnia magna) (OECD 202)<br>(Merck) |
| NOEC | 0.016–0.064 mg/l (Daphnia magna) (7d) |
| | 6 mg/l (fathhead minnow) (7d) |
| IC50 | 0.16–0.59 mg/l/96 h (Chlorella vulgaris)<br>(IUCLID) |
| EC50 | 0.31 mg/l/72h (Desmodesmus subspicatus) |
| LC50 | 58.5 mg/l/96h (byr) |
| | 0.131 mg/l/96h (bluegill) |
| | 160 mg/l/96h (guppy) |
| | 26.13 mg/l/96h (fathhead minnow)<br>(Merck/IUCLID) |

· **Bacterial toxicity:**
sulphates toxic > 2.5 g/l

| CAS: 7778-50-9 potassium dichromate | |
|---|---|
| EC50 | 58 mg/l (Photobacterium phosphoreum) (30 min; Microtox-Test) |

· **Other information:**
Toxic for fish:
Sulphates > 7 g/l

· **12.2 Persistence and degradability** .

· **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.

· **12.3 Bioaccumulative potential** No further relevant information available.

| · Bioconcentration factor (BCF) | |
|---|---|
| **CAS: 10294-26-5 disilver(1+) sulfate** | |
| BCF | 2.5 (rainbow trout)<br>(8d, 15°C, test substance: $AgNO_3$) |
| **CAS: 7778-50-9 potassium dichromate** | |
| BCF | 17.4 (rainbow trout) |

· **12.4 Mobility in soil** No further relevant information available.

· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**
Harmful effect due to pH shift.
Forms corrosive mixtures with water even if diluted.
Avoid transfer into the environment.

· **Water hazard:**
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.

## SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.

| · European waste catalogue | |
|---|---|
| 16 05 07* | discarded inorganic chemicals consisting of or containing hazardous substances |

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

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# Safety data sheet
## according to 1907/2006/EC, Article 31

Printing date 27.10.2023 Version number 5 (replaces version 4) Revision: 27.10.2023

**Product name: COD / CSB 15-300 mg/l**

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· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

## SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA** UN2922

· **14.2 UN proper shipping name**
· **ADR** 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE), ENVIRONMENTALLY HAZARDOUS
· **IMDG** CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE), MARINE POLLUTANT
· **IATA** CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE)

· **14.3 Transport hazard class(es)**

· **ADR**




· **Class** 8 (CT1) Corrosive substances.
· **Label** 8+6.1

· **IMDG**




· **Class** 8 Corrosive substances.
· **Label** 8/6.1

· **IATA**




· **Class** 8 Corrosive substances.
· **Label** 8 (6.1)

· **14.4 Packing group**
· **ADR, IMDG, IATA** II

· **14.5 Environmental hazards:** Product contains environmentally hazardous substances: mercury sulphate
· **Marine pollutant:** Yes
Symbol (fish and tree)
· **Special marking (ADR):** Symbol (fish and tree)

· **14.6 Special precautions for user** Warning: Corrosive substances.
· **Kemler Number:** 86
· **EMS Number:** F-A,S-B
· **Segregation groups** (SGG1) Acids, (SGG7) heavy metals and their salts (including their organometallic compounds)
· **Stowage Category** B
· **Stowage Code** SW2 Clear of living quarters.

· **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

· **Transport/Additional information:**

· **ADR**
· **Excepted quantities (EQ):** E2

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# Safety data sheet
## according to 1907/2006/EC, Article 31

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**Product name: COD / CSB 15-300 mg/l**

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| | |
|---|---|
| · **Limited quantities (LQ)** | 1L |
| · **Excepted quantities (EQ)** | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · **Transport category** | 2 |
| · **Tunnel restriction code** | E |
| · **IMDG** | |
| · **Limited quantities (LQ)** | 1L |
| · **Excepted quantities (EQ)** | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |

* 
## SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Poisons Act UK**

· **Regulated explosives precursors**

The substance falls under regulated explosive precursors due to the fact that the concentration is greater than/equal (c≥ x%) the stated mass percentage:

| | | |
|---|---|---|
| CAS: 7664-93-9 | sulphuric acid | 15% |

· **Regulated poisons**

| | | |
|---|---|---|
| CAS: 7783-35-9 | mercury sulphate | Listed |

· **Reportable explosives precursors**

None of the ingredients is listed.

· **Reportable poisons**

None of the ingredients is listed.

· **Regulation (EU) 2019/1148 on the marketing and use of explosives precursors** not regulated: article

· **explosives precursors - ANNEX I**

| | | |
|---|---|---|
| CAS: 7664-93-9 | sulphuric acid | * |

· **Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**

| | | |
|---|---|---|
| CAS: 7783-35-9 | mercury sulphate | Annex I Part 1<br>Annex I Part 3<br>Annex V Part 2 |

· **Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

| | | |
|---|---|---|
| CAS: 7664-93-9 | sulphuric acid | 3 |

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

| | | |
|---|---|---|
| CAS: 7664-93-9 | sulphuric acid | 3 |

· **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**

None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

c < 0.1%

| | |
|---|---|
| CAS: 7778-50-9 | potassium dichromate |

· **Substances of very high concern (SVHC) according to REACH, Article 57**

This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Substances of very high concern (SVHC) according to UK REACH**

This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Directive 2012/18/EU (SEVESO III):**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

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# Safety data sheet
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· **Seveso category** E1 Hazardous to the Aquatic Environment
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 18, 28, 29, 30

· **Information about limitation of use:**
Employment restrictions concerning young persons must be observed (94/33/EC).
Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC).

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**
H272 May intensify fire; oxidiser.
H290 May be corrosive to metals.
H300 Fatal if swallowed.
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H360FD May damage fertility. May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· **Abbreviations and acronyms:**
EC50: effective concentration, 50 percent (in vivo)
OECD: Organisation for Economic Co-operation and Development
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Ox. Sol. 2: Oxidizing solids – Category 2
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 1: Acute toxicity – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 1B: Germ cell mutagenicity – Category 1B

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Carc. 1B: Carcinogenicity – Category 1B
Repr. 1B: Reproductive toxicity – Category 1B
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· **Sources**
Data arise from safety data sheets, reference works and literature.
ECHA: European CHemicals Agency http://echa.europa.eu
IUCLID (International Uniform Chemical Information Database)
GESTIS- Stoffdatenbank (Substance Database, Germany)
RTECS (Registry of Toxic Effects of Chemical Substances )

· *** Data compared to the previous version altered.**