

Material Safety Data Sheet

According to 91/155 EEC

Printing date 12.10.2005








Reviewed on 12.10.2005

1 Identification of substance:

- **Product details:** Reagent for water analysis
- **Product name:** COD Reagent 1500 mg/l
- **Catalogue number:** CW/24.20.721
- **Supplier:**
Camlab Limited
Camlab House, Norman Way, Over, Cambridge CB4 5WE
United Kingdom
Tel: +44 (0)1954 233100
- **Informing department:** Technical Support
- **Emergency information:**
National Poisons Information Service, United Kingdom
Tel: 0870 600 6266 (24 hours) • <http://www.npis.org/>

* 2 Composition/Data on components:

- **Description:** sulphuric acid solution
- **Dangerous components:**
The percent content of the chromium compound mentioned below refers to the amount of the pure chromium therein.
The percent content of the mercury compound mentioned below refers to the amount of the pure mercury therein.

CAS: 7664-93-9 EINECS: 231-639-5 EC Number: 016-020-00-8	sulphuric acid  C; R 35	80-90%
CAS: 7783-35-9 EINECS: 231-992-5 EC Number: 080-002-00-6	mercury sulphate  T+,  N; R 26/27/28-33-50/53	0.1-1.0%
CAS: 7778-50-9 EINECS: 231-906-6 EC Number: 024-002-00-6	potassium dichromate Carc. Cat. 2, Muta. Cat. 2, Repr. Cat. 2;  T+,  O,  N; R 45-46-60-61-8-21-25-26-34-42/43-48/23-50/53	0.1-1.0%
CAS: 10294-26-5 EINECS: 233-653-7	disilver(1+) sulphate  Xi; R 41	0.5-3.0%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

- **Hazard designation:**



T Toxic
C Corrosive

- **Information pertaining to particular dangers for man and environment**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Avoid exposure - obtain special instructions before use.

R 45 May cause cancer.

R 46 May cause heritable genetic damage.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

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7778-50-9 potassium dichromate

MEL (Great Britain)	Long-term value: 0.05 mg/m ³ as Cr
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- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Take off immediately all contaminated clothing
 - Wash hands during breaks and at the end of the work.
 - Store protective clothing separately.
 - Do not inhale gases / fumes / aerosols.
 - Avoid contact with the eyes and skin.
 - Do not eat, drink or smoke while working.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Recommended filter device for short term use:** Filter B
- **Protection of hands:**
 - Acid resistant gloves
 - Only use chemical-protective gloves with CE-labelling of category III.
 - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 - 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**
 - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
 - Butyl rubber, BR
 - Recommended thickness of the material: ≥ 0.7 mm
- **Penetration time of glove material**
 - The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
 - Value for the permeation: Level ≥ 6 (480 min)
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:** Acid resistant protective clothing

9 Physical and chemical properties:

- | | |
|--|---------------------------|
| · Form: | Fluid |
| · Colour: | Yellow-brown |
| · Odour: | Recognizable |
| · Melting point/Melting range: | Not applicable |
| · Boiling point/Boiling range: | Not determined |
| · Flash point: | Not applicable |
| · Danger of explosion: | Product is not explosive. |
| · Density at 20°C | 1.758 g/cm ³ |
| · Solubility in / Miscibility with Water: | Fully miscible |
| · pH-value at 20°C: | ~ 1 |
| · Solvent content: | |
| Organic solvents: | 0.0 % |
| Water: | < 20 % |

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· Solids content:	< 1 %
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10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** strong heating
 - **Materials to be avoided:**
 - organic substances
 - ammonia
 - alkali compounds
 - alkalis
 - acids
 - metals
 - halogen compounds
 - combustible substances
 - organic solvents
 - nitriles
 - peroxides
 - reducing agents
 - oxidizing agents
 - **Dangerous reactions**
 - Corrosive action on metals
 - When diluting, always add acid to water, never vice versa
 - Reacts with metals forming hydrogen
 - Reacts with organic substances
 - Diluting or dissolving in water always causes rapid heating
 - Forms hydrogen in aqueous solution with metals
 - > Explosive
 - **Dangerous products of decomposition:**
 - nitrous gases
 - Sulphur oxides (SO_x)
 - see chapter 5
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11 Toxicological information

- **Acute toxicity:** Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:		
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7664-93-9 sulphuric acid		
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Oral	LD50	2140 (25%) mg/kg (rat)
Inhalative	LC 50	510 (pure) mg/m ³ /2h (rat)

7783-35-9 mercury sulphate		
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Oral	LD50	57 mg/kg (rat)
Dermal	LD50	625 mg/kg (rat)

7778-50-9 potassium dichromate		
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Oral	LD50	25 mg/kg (rat)
	LDLo	26 mg/kg (child)
		143 mg/kg (man)
Dermal	LD50	1170 mg/kg (rat)
Inhalative	LC50/4 h	0.094 mg/l (rat)
	LD50 IPR	28 mg/kg (rat)

- **Primary irritant effect:**
 - **on the skin:** Strong caustic effect on skin and mucous membranes.
 - **on the eye:** Strong caustic effect.

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- **Sensitization:** No sensitizing effect known.
 - **Experience with humans:**
 - Can cause kidney damages.
 - Can cause liver damages.
 - **Additional toxicological information:**
 - The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 - Toxic
 - Corrosive
 - Danger by skin resorption.
 - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
 - Carcinogenic
 - The product can cause inheritable damage.
 - Mercury compounds have a cytotoxic and protoplasmatoxic effect.
 - The principal signs manifest themselves in the CNS.
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12 Ecological information:

- **Information about elimination (persistence and degradability):**
- **Other information:**
 - Quantitative data on the ecological effect of this product are not available.
 - Does not cause biological oxygen deficit.
- **Ecotoxicological effects:**
- **Aquatic toxicity:**
 - The following applies to the water-soluble matter contained in inorganic Hg compounds in general:
 - The toxicity of mercury(II) ions for water organism depends on the water hardness (IPCS).

7664-93-9 sulphuric acid	
Daphnia EC50	29 mg/l/24h (Daphnia magna)
7783-35-9 mercury sulphate	
EC50	0.005-3.6 mg/l/48h (Daphnia magna)
LC50	0.5 mg/l/48h (Leuciscus idus)
	0.19 mg/l/96h (Pimephales promelas)
7778-50-9 potassium dichromate	
EC50	0.035 mg/l/48h (Daphnia magna)
LC50	58.5 mg/l/96h (Brachydanio rerio)
	160 mg/l/96h (Poecilia reticulata)
	25-150 mg/l/96h (Pimephales promelas)

- **Remark:**
 - Toxic for fish:
 - sulphates > 7 g/l
 - Forms corrosive mixtures with water even if diluted.
 - Harmful to aquatic organisms
 - Toxic for algae
- **Algal toxicity:** CAS-No. 7778-50-9: Chlorella vulgaris IC50: 0.16 - 0.59 mg/l/96 h
- **Bacterial toxicity:** CAS-No. 7778-50-9: Photobacterium phosphoreum EC50: 58 mg/l/30 min Microtox-Test (MERCK)
- **Remark:** neutralization possible
- **General notes:**
 - Water danger class 3 (German Regulation) (Self-assessment acc. VwVWS Annex 4): extremely hazardous for water.
 - 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.
 - Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms.

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13 Disposal considerations

- **Product:**
- **Recommendation** Hand over to disposers of hazardous waste.

European waste catalogue

16 05 07	discarded inorganic chemicals consisting of or containing dangerous substances
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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

Land transport ADR/RID (cross-border)


- **ADR/RID-GGVS/E Class:** 8 (CT1) Corrosive substances.
- **Kemler Number:** 86
- **UN-Number:** 2922
- **Packaging group:** II
- **Label** 8+6.1
- **Designation of goods:** 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE)

Maritime transport IMDG:


- **IMDG Class:** 8
- **UN Number:** 2922
- **Label** 8+6.1
- **Packaging group:** II
- **EMS Number:** F-A,S-B
- **Marine pollutant:** Yes
- **Correct technical name:** CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE)

Air transport ICAO-TI and IATA-DGR:


- **ICAO/IATA Class:** 8
- **UN/ID Number:** 2922
- **Label** 8+6.1
- **Packaging group:** II
- **Correct technical name:** CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE)

*15 Regulatory information

- **Designation according to EC guidelines:**
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)
- **Code letter and hazard designation of product:**
T Toxic
C Corrosive

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