

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

1 Identification

- **Product identifier**
- **Trade name:** **COD / CSB 0-1500 mg/l**
- **Catalogue number:** 424434, 2420721, 420721, 2420726, 420726
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Muta. 1B H340 May cause genetic defects.

Carc. 1B H350 May cause cancer.

Repr. 1B H360 May damage fertility or the unborn child.

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

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.

Skin Sens. 1 H317 May cause an allergic skin reaction.

(Contd. on page 2)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

(Contd. of page 1)

Label elements

· **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).

Hazard pictograms



GHS05 GHS06 GHS08 GHS09

Signal word Danger

Hazard-determining components of labeling:

sulphuric acid 82 %
mercury sulphate
potassium dichromate

Hazard statements

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
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.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.

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 through skin absorption.

3 Composition/information on ingredients

Chemical characterization: Mixtures

· **Description:** sulfuric acid solution

Composition and Information on Ingredients:

The percent content of the chromium compound mentioned below refers to the amount of the chromate ions dissolved in water.
The percent content of the mercury compound mentioned below refers to the amount of the pure mercury therein.
Cancer Status IARC: Strong inorganic acid mists containing sulphuric acid can cause cancer.
Percent ranges are used due to the confidential product information.

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 RTECS: WS5600000	sulphuric acid ⚠ Met. Corr.1, H290; Skin Corr. 1A, H314	80–90%
CAS: 7783-35-9 EINECS: 231-992-5 Index number: 080-002-00-6 RTECS: OX 0500000	mercury sulphate ⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ STOT RE 2, H373; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.25–1%

(Contd. on page 3)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

		(Contd. of page 2)
CAS: 10294-26-5 EINECS: 233-653-7	disilver(1+) sulphate ☠ Eye Dam. 1, H318; ☠ Aquatic Acute 1, H400 (M=100); Aquatic Chronic 1, H410 (M=100)	0.25–1%
CAS: 7778-50-9 EINECS: 231-906-6 Index number: 024-002-00-6 RTECS: HX 7680000	potassium dichromate ☠ Ox. Sol. 2, H272; ☠ Acute Tox. 3, H301; Acute Tox. 2, H330; ☠ Resp. Sens. 1, H334; Muta. 1B, H340; Carc. 1B, H350; Repr. 1B, H360; STOT RE 1, H372; ☠ Skin Corr. 1B, H314; ☠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ☠ Acute Tox. 4, H312; Skin Sens. 1, H317	0.25–0.5%

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

4 First-aid measures

· Description of first aid measures

· General information:

Personal protection for the First Aider.

Immediately remove any clothing soiled by the product.

· After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness remove to fresh air, apply artificial respiration, and consult a physician.

· 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. Then consult a doctor.

Call a doctor immediately.

· After swallowing:

Rinse out mouth and then drink 1-2 glasses of water.

Do not induce vomiting; immediately call for medical help.

· Most important symptoms and effects, both acute and delayed

burns

resorption

after inhalation:

breathing difficulty

coughing

asthma attacks

damage to the affected mucous membranes

after swallowing:

metallic taste

bloody diarrhoea

pain

strong caustic effect

unconsciousness

methaemoglobin formation

sickness

vomiting

cramps

· Danger:

Danger of circulatory collapse.

Danger of gastric perforation.

Danger of pulmonary edema.

· Indication of any immediate medical attention and special treatment needed:

If swallowed or in case of vomiting, danger of entering the lungs.

Later observation for pneumonia and pulmonary edema.

5 Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents: CO₂, sand, extinguishing powder.

· For safety reasons unsuitable extinguishing agents: Water

· 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.

(Contd. on page 4)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 3)

In case of fire, the following can be released:

Sulfur oxides (SO_x)

mercury vapours

chromium oxides

Potassium oxide

· **Advice for firefighters**· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

· **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 respiratory protective device against the effects of fumes/dust/aerosol.

· **Advice for emergency responders:** Protective equipment: see section 8· **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Use neutralizing agent.

Neutralize with diluted sodium hydroxide solution.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose contaminated material as waste according to item 13.

· **Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

· **Handling:**· **Precautions for safe handling**· **Advice on safe handling:**

Open and handle receptacle with care.

Work only in fume cabinet.

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.

Store protective clothing separately.

Wash hands before breaks and at the end of work.

Do not eat, drink or smoke when using this product.

· **Conditions for safe storage, including any incompatibilities**· **Storage:**· **Requirements to be met by storerooms and receptacles:** Store in a cool location.· **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 under lock and key and with access restricted to technical experts or their assistants only.

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

Protect from exposure to the light.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 4)

Protect from humidity and water.

This product is hygroscopic.

Store in dry conditions.

· **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)· **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

CAS: 7664-93-9 sulphuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³
TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³

CAS: 7783-35-9 mercury sulphate

PEL (USA)	Long-term value: 0.1 mg/m ³ as Hg; see OSHA standard interpretation memo
REL (USA)	Long-term value: 0.05* mg/m ³ Ceiling limit value: 0.1 mg/m ³ as Hg; *Vapor; Skin
TLV (USA)	Long-term value: 0.025 mg/m ³ as Hg; Skin; BEI
EL (Canada)	Long-term value: 0.025 mg/m ³ as Hg; Skin, R

CAS: 10294-26-5 disilver(1+) sulphate

EL (Canada)	Short-term value: 0.03 mg/m ³ Long-term value: 0.01 mg/m ³ as Ag
-------------	--

CAS: 7778-50-9 potassium dichromate

PEL (USA)	Long-term value: 0.005* mg/m ³ Ceiling limit value: 0.1** mg/m ³ *as Cr(VI) **as CrO ₃ ; see 29 CFR 1910.1026
REL (USA)	Long-term value: 0.0002 mg/m ³ as Cr; See Pocket Guide Apps. A and C
TLV (USA)	Short-term value: NIC-0.0005* mg/m ³ Long-term value: (0.05) NIC-0.0002* mg/m ³ as Cr; *inhalable, BEI, NIC-Skin, DSEN, RSEN
EL (Canada)	Long-term value: 0.025 mg/m ³ Ceiling limit value: 0.1 mg/m ³ as Cr; ACGIH A1, IARC 1

· Ingredients with biological limit values:

CAS: 7783-35-9 mercury sulphate

BEI (USA)	35 µg/L Medium: urine Time: prior to shift Parameter: Total inorganic mercury (background)
	15 µg/L Medium: blood Time: end of shift at end of workweek Parameter: Total inorganic mercury (background)

(Contd. on page 6)

— US —

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 5)

CAS: 7778-50-9 potassium dichromate

BEI (USA) 25 µg/L
 Medium: urine
 Time: end of shift at end of workweek
 Parameter: Total chromium (fume)

10 µg/L
 Medium: urine
 Time: increase during shift
 Parameter: Total chromium (fume)

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
 Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
 See item 7.
- **Personal protective equipment:**
- **Breathing equipment:**
 Use respiratory protective device against the effects of fumes/dust/aerosol.
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Recommended filter device for short term use:** Combination filter B-P2
- **Protection of hands:**
 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 through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
 Tightly sealed goggles
 Face protection
- **Body protection:** Acid resistant protective clothing
- **Limitation and supervision of exposure into the environment:**
 Avoid release to the environment.
 Do not allow product to reach sewage system or any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

Form / Physical state:	Liquid
Color:	Yellow-brown

Odor:	Recognizable
Odor threshold:	Not determined.

pH-value at 20 °C (68 °F):	1
-----------------------------------	---

Melting point/freezing point:	Not determined.
Initial boiling point and boiling range:	> 100 °C (> 212 °F)

Flash point:	Not applicable.
---------------------	-----------------

Flammability (solid, gas):	Not applicable.
-----------------------------------	-----------------

Decomposition temperature:	Not determined.
-----------------------------------	-----------------

Auto-ignition temperature:	Product is not self-igniting.
-----------------------------------	-------------------------------

Danger of explosion:	Product does not present an explosion hazard.
-----------------------------	---

Flammability or explosive limits:	
Lower:	Not applicable.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

(Contd. of page 6)

Upper:	Not applicable.
· Oxidizing properties:	CAS 7664-93-9 : Oxidizing potential
· Vapor Pressure:	Not determined.
· Density at 20 °C (68 °F):	1,76 g/cm ³ (14.69 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not determined.
· Evaporation rate:	Not determined.
· Solubility(ies) Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	Not determined.
· Solvent content: Organic solvents: Water: Solids content:	0,0 % < 20 % < 5 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
 - Corrosive action on metals.
 - Reacts with metals forming hydrogen (Danger of explosion!)
 - When diluting, always add acid to water, never vice versa.
 - Diluting or dissolving in water always causes rapid heating.
 - Reacts with reducing agents.
 - Reacts with acids, alkalis and oxidizing agents.
 - Reacts with peroxides.
 - Reacts with halogenated compounds.
 - Reacts with ammonia (NH₃).
- **Conditions to avoid** strong heating
- **Incompatible materials:**
 - metals
 - organic substances
 - combustible materials
 - organic solvents
- **Hazardous decomposition products:** see section 5

* 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Classification according to calculation procedure.

· Acute toxicity estimate (ATE_(MIX)) - Calculation method:

Oral	GHS ATE _(MIX)	540 mg/kg (.)
Dermal	GHS ATE _(MIX)	694 mg/kg (.)
Inhalative	GHS ATE _(MIX)	5.9 mg/l/4h (aerosol)

· LD/LC50 values that are relevant for classification:

CAS: 7664-93-9 sulphuric acid

Oral	LD50	2140 mg/kg (rat) (IUCLID)
	LC 50	510 mg/m ³ /2h (rat) IUCLID

(Contd. on page 8)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 7)

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

· **Primary irritant effect:**

· **on the skin:** Causes severe skin burns.

· **on the eye:**

Causes serious eye damage.

Risk of blindness!

· **Information on components:**

CAS: 10294-26-5 disilver(1+) sulphate		
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)

· **Sensitization:**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

· **Information on components:**

CAS: 7778-50-9 potassium dichromate		
Sensitization	Patch test (human)	(positive) (IUCLID)

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
CAS: 7664-93-9	sulphuric acid	1
CAS: 7783-35-9	mercury sulphate	3
CAS: 7778-50-9	potassium dichromate	1

· **NTP (National Toxicology Program)**

CAS: 7664-93-9	sulphuric acid	K
CAS: 7778-50-9	potassium dichromate	K

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.		
------------------------------------	--	--

· **Other information:**

see section 8 / 15

Cancer Status of Sulfuric acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

A2 (Suspected for humans) by ACGIH

· **Synergistic Products:** None

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 8)

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**
The following statements refer to the mixture:
Muta. 1B, Carc. 1B, Repr. 1B
- **Germ cell mutagenicity** May cause genetic defects.
- **Carcinogenicity** May cause cancer.
- **Reproductive toxicity** May damage fertility or the unborn child.
- **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.
- **Additional toxicological information:**
Mercury compounds have a cytotoxic and protoplasmatoxic effect.
The principal signs manifest themselves in the CNS.
Inhalable chromium (VI) compounds have clearly shown themselves to be carcinogenic in animal experiments.
Poor tendency for ulcers to heal following penetration of substance into the wound.
Lethal dose (man): 0.5 g
Antidotes: chelating agents such as EDTA, DMPS
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.
Sulfuric acid: erosion of the teeth, cancer
- **Experience with humans:**
CAS 7778-50-9: Can cause liver damage.
CAS 7778-50-9: Can cause kidney damages.
CAS 7778-50-9: May cause lung damages.
CAS 7778-50-9: Can cause cardiac damages.

*12 Ecological information

· Toxicity

· Aquatic toxicity:

CAS: 7664-93-9 sulphuric acid

EC50	>100 mg/l/48h (Daphnia magna) (OECD 202) (ECHA)
LC50	16–29 mg/l/96h (bluegill) (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+) sulphate

EC50	0.0045 mg/l/48h (Daphnia magna) (GESTIS)
EC50	0.0049 mg/l/96h (fathhead minnow)
EC10	0.00214 mg/l (Daphnia magna) (ASTM) (21d, test substance: AgNO ₃)
	0.00039 mg/l (fathhead minnow) (ASTM E1241-98) (28d, test substance: AgNO ₃ , result in mg/l Ag)

CAS: 7778-50-9 potassium dichromate

EC50	0.62 mg/l/48h (Daphnia magna) (OECD 202) (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) (IUCLID)
EC50	0.31 mg/l/72 h (Desmodesmus subspicatus)
LC50	58.5 mg/l/96h (byr) 0.131 mg/l/96h (bluegill)

(Contd. on page 10)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

(Contd. of page 9)

	160 mg/l/96h (guppy)
	26.13 mg/l/96h (fathead minnow)
	(Merck/IUCLID)

· **Bacterial toxicity:****CAS: 7778-50-9 potassium dichromate**

EC50 58 mg/l (Photobacterium phosphoreum) (30 min; Microtox-Test)

· **Other information:**

Toxic for fish:

sulfates > 7 g/l

· **Persistence and degradability .**· **Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

· **Bioaccumulative potential**

BCF = Bioconcentration factor

CAS: 10294-26-5 disilver(1+) sulphateBCF 2.5 (rainbow trout)
(8d, 15°C, test substance: AgNO₃)**CAS: 7778-50-9 potassium dichromate**

BCF 17.4 (rainbow trout)

· **Mobility in soil** No further relevant information available.· **Other adverse effects**

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

Avoid transfer into the environment.

13 Disposal considerations

· **Waste treatment methods**· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**· **DOT, IMDG, IATA**

UN2922

· **UN proper shipping name**· **DOT**· **IMDG**· **IATA**Corrosive liquids, toxic, n.o.s. (Sulfuric acid, Mercury sulfates)
CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID,
MERCURY SULPHATE), MARINE POLLUTANT
CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID,
MERCURY SULPHATE)· **Transport hazard class(es)**· **DOT**· **Class**

8 Corrosive substances

(Contd. on page 11)

— US —

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

(Contd. of page 10)

· Label	8, 6.1
· IMDG	
  	
· Class	8 Corrosive substances
· Label	8/6.1
· IATA	
 	
· Class	8 Corrosive substances
· Label	8 (6.1)
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	
· Marine pollutant:	Yes Symbol (fish and tree)
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	86
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· Limited quantity (LQ):	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (Extremely hazardous substances):

CAS: 7664-93-9	sulphuric acid
CAS: 7783-35-9	mercury sulphate

· Section 313 (Specific toxic chemical listings):

This mixture contains Chromic acid, dipotassium salt [listed as **undefined** - Cr(VI)] which is subject to the reporting requirements of Section 313 SARA Title III and 40 CFR Part 372.

CAS: 7664-93-9	sulphuric acid
CAS: 7783-35-9	mercury sulphate

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

(Contd. of page 11)

CAS: 10294-26-5	disilver(1+) sulphate
CAS: 7778-50-9	potassium dichromate

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65**· Chemicals known to cause cancer:**

Chromium (hexavalent) compounds are listed in California Proposition 65 as carcinogens.

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

· Chemicals known to cause reproductive toxicity for females:

Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to reproduction for females.

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

· Chemicals known to cause reproductive toxicity for males:

Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to reproduction for males.

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

· Chemicals known to cause developmental toxicity:

Chromium (hexavalent) compounds are listed in California Proposition 65 as toxic to development.

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

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

· New Jersey Right-to-Know List:

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

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

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

· New Jersey Special Hazardous Substance List:

CAS: 7664-93-9	sulphuric acid	CA, CO, R2
----------------	----------------	------------

CAS: 7778-50-9	potassium dichromate	CA, MU
----------------	----------------------	--------

· Pennsylvania Right-to-Know List:

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

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

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

· Pennsylvania Special Hazardous Substance List:

CAS: 7664-93-9	sulphuric acid	E
----------------	----------------	---

CAS: 7783-35-9	mercury sulphate	E
----------------	------------------	---

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

· EPA (Environmental Protection Agency)

CAS: 7783-35-9	mercury sulphate	D
----------------	------------------	---

CAS: 7778-50-9	potassium dichromate	A(inh), D(oral), K/L(inh), CBD(oral)
----------------	----------------------	--------------------------------------

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Chromium, hexavalent [Cr(VI)]

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

· Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning young persons must be observed.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H272 May intensify fire; oxidizer.

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.

(Contd. on page 13)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: **COD / CSB 0-1500 mg/l**

(Contd. of page 12)

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.
 H360 May damage fertility or 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.

• **Date of preparation / last revision** 12/05/2017 / 13

• **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
 ACGIH® - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 ADR: Accord européen sur le transport 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
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 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)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 NIOSH: National Institute for Occupational Safety
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 BEI: Biological Exposure Limit
 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
 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)

(Contd. on page 14)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 12/05/2017

Reviewed on 12/05/2017

Trade name: COD / CSB 0-1500 mg/l

RTECS (Registry of Toxic Effects of Chemical Substances)

(Contd. of page 13)

· * Data compared to the previous version altered.

US
