

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 01/31/2017

Reviewed on 01/31/2017

1 Identification

- **Product identifier**
- **Trade name:** COD High Range (0-15,000 mg/l)
- **Catalogue number:** CODHP0, CODH150
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Thermo Fisher Scientific
Water and Lab Products
22 Alpha Road
Chelmsford, MA 01824, USA
phone: 1-978-232-6000
Made in Germany
- **Informing Department:** usbev.customerservice@thermofisherscientific.com
- **Emergency telephone number:**
24 hr Emergency
CHEMTREC®
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: 1-703-527-3887
(collect calls accepted)

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. 1 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.

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GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Skin Sens. 1 H317 May cause an allergic skin reaction.

• 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
 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 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/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.

• Other hazards

Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.
 Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.
 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.

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	60-70%
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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%
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	0.1-<0.3%

• **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.

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:

coughing

breathing difficulty

asthma attacks

damage to the affected mucous membranes

after swallowing:

strong caustic effect

metallic taste

sickness

vomiting

bloody diarrhoea

pain

methaemoglobin formation

unconsciousness

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.

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- **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.
Sulfur oxides (SOx)
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.

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Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

Protect from exposure to the light.

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:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

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
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
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)	Long-term value: 0.05 mg/m ³ as Cr; BEI

• 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)
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.

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- **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.
- **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.

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.
Upper:	Not applicable.
• Oxidizing properties:	Oxidizing potential
• Vapor Pressure:	Not determined.
• Density at 20 °C (68 °F):	1.58 g/cm ³ (13.185 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:	0.0 %
Water:	< 20 %

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Solids content:	< 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.
- **Conditions to avoid** strong heating
- **Incompatible materials:**
 - metals
 - organic substances
 - Ammonia (NH₃)
 - alkali compounds
 - alkalis
 - acids
 - halogen compounds
 - combustible materials
 - organic solvents
 - nitriles
 - peroxides
 - reducing agents
 - oxidizing agents
- **Hazardous decomposition products:**
 - Sulfur oxides (SO_x)
 - 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)	723 mg/kg (.)
Dermal	GHS ATE _(MIX)	933 mg/kg (.)
Inhalative	GHS ATE _(MIX)	7.45 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)
Inhalative	LC 50	510 (pure) mg/m ³ /2h (rat) IUCLID

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)
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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)
Dermal	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 7664-93-9: chronic: dermatitis

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: Sensitizing effect by inhalation and skin contact is possible by prolonged exposure.

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

• 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
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**
The following statements refer to the mixture:
Muta. 1B, Carc. 1B, Repr. 1
- **Germ cell mutagenicity** May cause genetic defects.
- **Carcinogenicity** May cause cancer.
- **Reproductive toxicity** May damage fertility.
- **Teratogenicity:** May damage 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.

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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.

Sulfuric acid: erosion of the teeth, cancer

The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of aerosols may cause lung oedema.

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)

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+) sulphateEC50 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: AgNO₃)
0.00039 mg/l (fathhead minnow) (ASTM E1241-98)
(28d, test substance: AgNO₃, 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)
160 mg/l/96h (guppy)
26.13 mg/l/96h (fathhead minnow)
(Merck/IUCLID)**Bacterial toxicity:**

sulfates 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:

sulfates > 7 g/l

Persistence and degradability .

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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+) sulphate
BCF 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

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

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

Corrosive liquids, toxic, n.o.s. (Sulfuric acid, potassium dichromate)

IMDG

CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE), MARINE POLLUTANT

IATA

CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE)

Transport hazard class(es)
DOT

Class

8 Corrosive substances

Label

8, 6.1

IMDG

Class

8 Corrosive substances

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• Label	8/6.1
• IATA	
 	
• Class	8 Corrosive substances
• Label	8 (6.1)
• Packing group	
• DOT, IMDG, IATA	II
• Environmental hazards:	Product contains environmentally hazardous substances: mercury sulphate
• 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, heavy metals and their salts (including their organometallic compounds)
• 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):

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

CAS: 7778-50-9	potassium dichromate
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• **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.

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.

(Contd. on page 13)

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Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 01/31/2017

Reviewed on 01/31/2017

Trade name: COD High Range (0-15,000 mg/l)

(Contd. of page 12)

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

• **Date of preparation / last revision** 01/31/2017 / -• **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

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. 1: Reproductive toxicity – Category 1

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.

IUCLID (International Uniform Chemical Information Database)

GESTIS- Stoffdatenbank (Substance Database, Germany)

RTECS (Registry of Toxic Effects of Chemical Substances)

International Chemical Safety Cards (ICSCs)

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

— UST —