Safety Data Sheet

According to U.S.A. Federal Hazcom 2012 and Canadian HPR - WHMIS 2015

1. Identification

1.1. Product identifier

Code	**HI93754B-0**
Product name	**COD MR Reagent**

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

Intended use	**Determination of Chemical Oxygen Demand in Water Samples - EPA Method.**

1.3. Details of the supplier of the safety data sheet

Name	**Hanna Instruments S.R.L.**
Full address	**str. Hanna Nr 1**
District and Country	**457260 loc. Nusfalau (Salaj)** **Romania** **Tel. +40 260607700** **Fax +40 260607700**
e-mail address of the competent person responsible for the Safety Data Sheet	**msds@hanna.ro**
Product distribution by:	**Hanna Instruments, Inc - 584 Park East Drive, Woonsocket, Rhode Island, USA 02895 - Technical Service Contact Information: +1 8004266287 - e-mail: sds@hannainst.com**

1.4. Emergency telephone number

For urgent inquiries refer to	**USA Emergency Contact Information: +1 8004249300 - CHEMTREC 24 hours/365 days - International Emergency Contact Information: +1 7035273887 - CHEMTREC 24 hours/365 days**

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement

Substance or mixture corrosive to metals, category 1	May be corrosive to metals.
Carcinogenicity, category 1B	May cause cancer.
Germ cell mutagenicity, category 1B	May cause genetic defects.
Reproductive toxicity, category 1B	May damage fertility or the unborn child.
Acute toxicity, category 2	Fatal if swallowed.
Acute toxicity, category 3	Toxic in contact with skin.
Acute toxicity, category 4	Harmful if inhaled.
Specific target organ toxicity - repeated exposure, category 2	May cause damage to organs through prolonged or repeated exposure.
Skin corrosion, category 1	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.
Respiratory sensitization, category 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization, category 1	May cause an allergic skin reaction.

Hazard pictograms:

2. Hazards identification ... / >>

Signal words: Danger

Hazard statements:

H290	May be corrosive to metals.
H350	May cause cancer.
H340	May cause genetic defects.
H360	May damage fertility or the unborn child.
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
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.

Precautionary statements:
Prevention:

P201	Obtain special instructions before use.
P260	Do not breathe dust, fume, gas, mist, vapours, spray.
P280	Wear protective gloves / protective clothing / eye protection / face protection.

Response:

P310	Immediately call a POISON CENTER or doctor.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P391	Collect spillage.

Storage:

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Disposal:

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2.2. Other hazards

Environmental classification as for Reg. (EU) 1272/2008 (CLP):

The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement

Hazardous to the aquatic environment, chronic toxicity, category 3	Harmful to aquatic life with long lasting effects.

Hazard statements:

H412	Harmful to aquatic life with long lasting effects.

Precautionary statements:
Prevention:

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Response:

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Storage:

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Disposal:

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Additional hazards
Information not available

3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification:
SULPHURIC ACID		
CAS *7664-93-9*	50 ≤ x < 100	**Substance or mixture corrosive to metals, category 1 H290, Skin corrosion, category 1A H314, Serious eye damage, category 1 H318**
EC *231-639-5*		
INDEX *016-020-00-8*		

3. Composition/information on ingredients ... / >>

MERCURY (II) SULFATE
CAS *7783-35-9* 0.5 ≤ x < 1 **Acute toxicity, category 1 H300, Acute toxicity, category 1 H310, Acute toxicity, category 2 H330, Specific target organ toxicity - repeated exposure, category 2 H373 , Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1**
EC *231-992-5*
INDEX *080-002-00-6*

SILVER SULFATE
CAS *10294-26-5* 0.25 ≤ x < 0.5 **Serious eye damage, category 1 H318, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1**
EC *233-653-7*
INDEX

POTASSIUM DICHROMATE
CAS *7778-50-9* 0.25 ≤ x < 0.5 **Oxidising solid, category 2 H272, Carcinogenicity, category 1B H350, Germ cell mutagenicity, category 1B H340, Reproductive toxicity, category 1B H360, Acute toxicity, category 2 H330, Acute toxicity, category 3 H301, Acute toxicity, category 4 H312, Specific target organ toxicity - repeated exposure, category 1 H372 , Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Specific target organ toxicity - single exposure, category 3 H335, Respiratory sensitization, category 1 H334, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=10, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1**
EC *231-906-6*
INDEX *024-002-00-6*

* There is a batch to batch variation.

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.
INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.
INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

Specific information on symptoms and effects caused by the product are unknown.

SULPHURIC ACID
SULPHURIC ACID 98%: Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting, Diarrhoea, Pain, Risk of blindness.

MERCURY (II) SULFATE
Mercury compounds have a cytotoxic and protoplasmatoxic effect. Intoxication symptoms: acute: contact with eye causes severe lesions. Swallowing and inhalation of dusts damages mucous membranes of gastrointestinal and respiratory tract (metallic taste, nausea, vomiting, abdominal pain, bloody diarrhoea, intestinal burns, glottal oedema, aspiration pneumonia); drop in blood pressure, cardiac dysrhythmia, circulatory collapse, and renal failure; chronic: inflammation of the mouth with loss of teeth and mercurial line. The principal signs manifest themselves in the CNS (impaired speech, vision, hearing, and sensitivity, loss of memory, irritability, hallucinations, delirium inter alia).

POTASSIUM DICHROMATE
Irritation and corrosion, Allergic reactions, Cough, Shortness of breath Chromium(VI) is highly toxic. It is absorbed via both the lungs and the gastrointestinal tract. Being strong oxidisers, chromates/ bichromates can cause burns and ulcerations on the skin and mucous membranes and also irritations in the upper respiratory tract. Poorly healing ulcers occur after wound contact. In predisposed persons the substance rapidly leads to sensitisation and allergic reactions of the respiratory tract (risk of pneumonia!) and damage to nasal mucous membranes (under given circumstances perforation of the septum). After swallowing severe symptoms in the gastrointestinal tract such as bloody diarrhoea, vomiting (aspiration pneumonia!), spasms, circulatory collapse, unconsciousness, formation of methaemoglobin. Absorption may result in hepatic and renal damage. Inhalable chromium(VI) compounds gave clear evidence to be carcinogenic in animal experiments. Lethal dose (man): 0.5g. Antidotes: chelating agents such as EDTA, DMPS (Demaval®). Risk of blindness!.

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

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

SULPHURIC ACID
SULPHURIC ACID 98%: Not combustible, Fire may cause evolution of Sulphur oxides.

MERCURY (II) SULFATE
Not combustible. Avoid shock and friction. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: mercury vapours, iodine, hydrogen iodide.

POTASSIUM DICHROMATE
Not combustible, has a fire-promoting effect due to release of oxygen.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

7. Handling and storage ... / >>

Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

USA	NIOSH-REL	NIOSH publication No. 2005-149, 3th printing, 2007.
USA	OSHA-PEL	Occupational Exposure Limits - Limits for Air Contaminants TABLE Z-1-1910.1000.
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2020

SULPHURIC ACID

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	0.2				
OEL	EU	0.05				
OSHA	USA	1				
CAL/OSHA	USA	0.1		3		
NIOSH	USA	1				

MERCURY (II) SULFATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	0.025				
OEL	EU	0.02				

SILVER SULFATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	0.01				
OEL	EU	0.01				

POTASSIUM DICHROMATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH	-	0.05				
OSHA	USA	0.005				
CAL/OSHA	USA	0.005		0.1 (C)		

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

SULPHURIC ACID
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm OSHA ID-113.

MERCURY (II) SULFATE
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm ISO 17733 - Biological Values, ACGIH: 20 µg mercury/g creatinine in urine, GBR: 20 µmol mercury/mol creatinine in urine (Random), DEU: 25 µg Quecksilber/g Kreatinin Urin (keine Beschränkung) , ESP: 30 µg Mercurio inorgánico total/g creatinina en orina (Antes de la jornadalaboral), ROU: 35 µg mercur/g creatină in urină (începutul schimbului următor).

8. Exposure controls/personal protection ... / >>

POTASSIUM DICHROMATE
Cr (VI) - Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms ISO 16740 / NIOSH 7605 - Biological Values, ACGIH: 25 µg/L Total chromium in urine, GBR: 10 µmol chromium/mol creatinine in urine (Post shift), DEU: 20 µg/L Alkalichromate in Urin bei 0.05 mg/Kubikmeter in der Luft (Schichtende), ESP: 10 µg/L cromo total en orina (Principio y final dela jornada laboral), ROU: 10 µg/L crom total in urină (în timpul lucrului).

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.
HAND PROTECTION
Protect hands with category III work gloves (OSHA 29 CFR 1910.138).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear airtight protective goggles (OSHA 29 CFR 1910.133).
RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	dense liquid	
Colour	orange	
Odour	odourless	
Odour threshold	Not available	
pH	0.5	
Melting point / freezing point	Not available	
Initial boiling point	Not available	
Boiling range	Not available	
Flash point	Not applicable	
Evaporation rate	Not available	
Flammability (solid, gas)	Not available	
Lower inflammability limit	Not available	
Upper inflammability limit	Not available	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Vapour pressure	Not available	
Vapour density	Not available	
Relative density	1.71	
Solubility	partially soluble in water	
Partition coefficient: n-octanol/water	Not available	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
Viscosity	Not available	
Explosive properties	not applicable	
Oxidising properties	Not available	

9.2. Other information

Total solids (250°C / 482°F)	89,73 %

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

SULPHURIC ACID
SULPHURIC ACID 98%: Decomposes at 450°C/842°F, has a corrosive effect, strong oxidising agent.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

SULPHURIC ACID
SULPHURIC ACID 98%: Stable under standard ambient condition.

MERCURY (II) SULFATE
Sensitivity to light.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

SULPHURIC ACID
SULPHURIC ACID 98%: Violent reactions possible with: Water, Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, Acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide.

MERCURY (II) SULFATE
Violent reactions possible with: Hydrogen halides.

POTASSIUM DICHROMATE
Risk of explosion with Iron, magnesium, hydrazine and derivatives, hydroxylamine, ammonium nitrate, Boron, Acetic anhydride, oxidisable substances, Reducing agents, sulphuric acid, silicon. Exothermic reaction with: anhydrides, phosphides, Sulphides, nitrides, Fluorine. Risk of ignition or formation of inflammable gases or vapours with organic combustible substances, glycerol, Powdered metals, hydrides, alkali compounds, Acetone, with, sulphuric acid. Generates dangerous gases or fumes in contact with hydrochloric acid.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

MERCURY (II) SULFATE
Strong heating.

POTASSIUM DICHROMATE
Strong heating.

10.5. Incompatible materials

SULPHURIC ACID
SULPHURIC ACID 98%: Animal/vegetable tissues, Metals. Contact with metals liberates hydrogen gas.

10.6. Hazardous decomposition products

SULPHURIC ACID
SULPHURIC ACID 98%: Sulphur oxide.

11. Toxicological information

11.1. Information on toxicological effects

SULPHURIC ACID
SULPHURIC ACID 98% - Skin irritation: causes severe burns - Eye irritation: causes seriuos eye damage, risk of blindness!

11. Toxicological information ... / >>

MERCURY (II) SULFATE
Acute inhalation toxicity, absorption, Symptoms: Lung oedema, The substance has delayed effects - Acute dermal toxicity, LD50 rat: 625 mg/kg (Regulation (EC) No 1272/2008, Annex VI), absorption - Specific target organ toxicity, repeated exposure: May cause damage to organs through prolonged or repeated exposure.

POTASSIUM DICHROMATE
Skin irritation, Rabbit, result: Irritating, Causes burns - Eye irritation: Causes serious eye damage, Risk of blindness! - Sensitisation test (Magnusson and Kligman) result: positive, Patch test human result: positive, May cause allergy or asthma symptoms or breathing difficulties if inhaled, May cause an allergic skin reaction - Carcinogenicity: May cause cancer - Mutagenicity: May cause genetic defects - Teratogenicity: May damage the unborn child - Reproductive toxicity: May damage fertility - Specific target organ toxicity, repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

POTASSIUM DICHROMATE	
LD50 (Oral)	90.5 mg/kg Rat
LD50 (Dermal)	14 mg/kg Rabbit
LC50 (Inhalation)	0.088 mg/l/4h Rat
MERCURY (II) SULFATE	
LD50 (Oral)	57 mg/kg Rat
LD50 (Dermal)	625 mg/kg Rat
SILVER SULFATE	
LD50 (Oral)	5000 mg/kg Rat - OECD 401
SULPHURIC ACID	
LD50 (Oral)	2140 mg/kg Rat

SKIN CORROSION / IRRITATION

Corrosive for the skin
Classification according to the experimental Ph value

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin
Sensitising for the respiratory system

GERM CELL MUTAGENICITY

May cause genetic defects

CARCINOGENICITY

May cause cancer

11. Toxicological information ... / >>

REPRODUCTIVE TOXICITY

May damage fertility or the unborn child

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

May cause damage to organs

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

MERCURY (II) SULFATE
Toxicity to algae, IC5 M.aeruginosa: 0.005 mg/l (maximum permissible toxic concentration).

POTASSIUM DICHROMATE

LC50 - for Fish	0.131 mg/l/96h Lepomis macrochirus
EC50 - for Crustacea	0.035 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	0.31 mg/l/72h Pseudokirchneriella subcapitata
Chronic NOEC for Fish	6 mg/l/7d Pimephales promeas
Chronic NOEC for Crustacea	0.016 mg/l/7d Daphnia

MERCURY (II) SULFATE

LC50 - for Fish	0.19 mg/l/96h Pimephales promelas

SILVER SULFATE

EC50 - for Crustacea	0.004 mg/l/48h

SULPHURIC ACID

LC50 - for Fish	42 mg/l/96h Gambusia affinis
EC50 - for Crustacea	42.5 mg/l/48h
EC50 - for Algae / Aquatic Plants	> 100 mg/l/72h

12.2. Persistence and degradability

POTASSIUM DICHROMATE

Solubility in water > 10000 mg/l
Degradability: information not available

SULPHURIC ACID

Solubility in water 1000 - 10000 mg/l
Degradability: information not available

12. Ecological information ... / >>

12.3. Bioaccumulative potential

POTASSIUM DICHROMATE

BCF	17.4

SILVER SULFATE

BCF	2.5

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

12.6. Other adverse effects

SULPHURIC ACID
SULPHURIC ACID 98%: Biological effect: Forms corrosive mixture with water even if diluted, Harmful effect due to pH shift, Endangers drinking-water supplies if allowed to enter soil or water, Discharge into the environment must to be avoid.

MERCURY (II) SULFATE
Discharge into the environment must be avoided.

POTASSIUM DICHROMATE
Discharge into the environment must be avoided.

13. Disposal considerations

13.1. Waste treatment methods
Reuse, when possible. Neat product residues should be considered special non-hazardous waste.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 2922

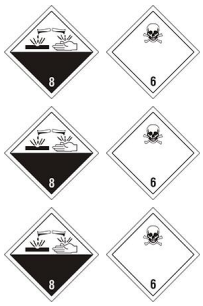
14.2. UN proper shipping name

ADR / RID:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE, POTASSIUM DICHROMATE) MIXTURE
IMDG:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE, POTASSIUM DICHROMATE) MIXTURE
IATA:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE, POTASSIUM DICHROMATE) MIXTURE

14. Transport information ... / >>

14.3. Transport hazard class(es)

ADR / RID:	Class: 8	Label: 8 (6.1)
IMDG:	Class: 8	Label: 8 (6.1)
IATA:	Class: 8	Label: 8 (6.1)



14.4. Packing group

ADR / RID, IMDG, IATA: II

14.5. Environmental hazards

ADR / RID:	Environmentally Hazardous
IMDG:	Marine Pollutant
IATA:	NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 86 Special provision: -	Limited Quantities: 1 L	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 30 L	Packaging instructions: 855
	Pass.:	Maximum quantity: 1 L	Packaging instructions: 851
	Special provision:	A3, A803	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

15. Regulatory information

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

U.S. Federal Regulations

TSCA:
All components are listed on TSCA Inventory.

Clean Air Act Section 112(b):
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

Clean Air Act Section 602 Class I Substances:
No component(s) listed.

Clean Air Act Section 602 Class II Substances:
No component(s) listed.

Clean Water Act – Priority Pollutants:
No component(s) listed.

15. Regulatory information ... / >>

Clean Water Act – Toxic Pollutants:
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

DEA List I Chemicals (Precursor Chemicals):
No component(s) listed.

DEA List II Chemicals (Essential Chemicals):
No component(s) listed.

EPA List of Lists:
313 Category Code:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

EPCRA 302 EHS TPQ:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)

EPCRA 304 EHS RQ:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)

CERCLA RQ:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

EPCRA 313 TRI:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

RCRA Code:
No component(s) listed.

CAA 112 (r) RMP TQ:
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)

State Regulations

Massachussetts:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

Minnesota:
7664-93-9 SULPHURIC ACID
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

New Jersey:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

New York:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

Pennsylvania:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

California:
7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)

15. Regulatory information ... / >>

7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

Proposition 65:
WARNING! This product contains chemicals known to the State of California to cause cancer and birth defects or reproductive harm.
7783-35-9 MERCURY (II) SULFATE (Mercury compounds)
7778-50-9 POTASSIUM DICHROMATE (Chromium VI compounds)

International Regulations
Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None

Substances subject to the Rotterdam Convention:
MERCURY (II) SULFATE - (MERCURY COMPOUNDS)

Substances subject to the Stockholm Convention:
None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H350	May cause cancer.
H340	May cause genetic defects.
H360	May damage fertility or the unborn child.
H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H300	Fatal if swallowed.
H330	Fatal if inhaled.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

LEGEND:
- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: EC Regulation 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code

16. Other information ... / >>

- REL: Recommended exposure limit- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TSCA: Toxic Substances Control Act
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.

GENERAL BIBLIOGRAPHY:
- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Comunication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachussetts 105 CMR Department of public health 670.000: "Right to Know"
- Minensota Chapter 5206 Departemnt Of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:
The following sections were modified:
02 / 03 / 11 / 12 / 16.