

Safety data sheet according to U.S.A. Federal Hazcom 2012 and Canadian Regulation SOR/88-66

SECTION 1. Identification of the substance/mixture and of the company/undertaking.

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.
Restricted to professional use.**

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. **sds@hannainst.com**

Product distribution by: **Hanna Instruments, Inc - 584 Park East, Woonsochet, Rhode Island, USA 02895 -
Technical Service Contact Information: +1-800-426-6287**

1.4. Emergency telephone number.

For urgent inquiries refer to. **USA Emergency Contact Information: +1-800-424-9300 - CHEMTREC 24
hours/365 days - International Emergency Contact Information: +1-703-527-3887 -
CHEMTREC 24hours/365 days**

SECTION 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

Carcinogenicity, category 1B

Germ cell mutagenicity, category 1B

Reproductive toxicity, category 1B

Acute toxicity, category 2

Acute toxicity, category 3

Acute toxicity, category 4

Specific target organ toxicity - repeated exposure, category 2

Skin corrosion, category 1A

Serious eye damage, category 1

Respiratory sensitization, category 1

Skin sensitization, category 1

May be corrosive to metals.

May cause cancer.

May cause genetic defects.

May damage fertility. Suspected of damaging the unborn child.

Fatal if swallowed.

Toxic in contact with skin.

Harmful if inhaled.

May cause damage to organs through prolonged or repeated exposure.

Causes severe skin burns and eye damage.

Causes serious eye damage.

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

May cause an allergic skin reaction.

Hazard pictograms:



SECTION 2. Hazards identification. ... / >>

Signal words: Danger

Hazard statements:

H290	May be corrosive to metals.
H350	May cause cancer.
H340	May cause genetic defects.
H360FD	May damage fertility. Suspected of damaging 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 and face protection.

Response:

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.
P308+P311	IF exposed or concerned: Call a POISON CENTER or doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P391	Collect spillage.

Storage: --

Disposal: --

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, acute toxicity, category 1	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	Very toxic to aquatic life with long lasting effects.

Hazard pictograms:



Signal words: Warning

Hazard statements:

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

Response: --

Storage: --

Disposal: --

Additional hazards.

Information not available.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification. **x = Conc. %.** **Classification:**

SULPHURIC ACID

CAS. 7664-93-9 $50 \leq x < 100$ Substance or mixture corrosive to metals, category 1 H290, Skin corrosion, category 1A H314

EC. 231-639-5

INDEX. 016-020-00-8

Reg. no. 01-2119458838-20

MERCURY (II) SULFATE

CAS. 7783-35-9 $0.5 \leq x < 1$ 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 $0.25 \leq x < 0.5$ 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 $0.25 \leq x < 0.5$ Oxidising solid, category 2 H272, Carcinogenicity, category 1B H350, Germ cell mutagenicity, category 1B H340, Reproductive toxicity, category 1B H360FD, 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, 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

Reg. no. 01-2119454792-32

* There is a batch to batch variation.

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

SECTION 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.

For symptoms and effects caused by the contained substances, see chap. 11.

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

SECTION 4. First aid measures. ... / >>

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!

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).

SILVER SULFATE

Irritant effects. Risk of permanent damage due to staining of the cornea.

SULPHURIC ACID

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

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

Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide and chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water.

Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

If large quantities of the product are involved in a fire, they can make it considerably worse. Do not breathe combustion products.

POTASSIUM DICHROMATE

Not combustible. Has a fire-promoting effect due to release of oxygen.

MERCURY (II) SULFATE

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Mercury vapours, Sulphur oxides.

SILVER SULFATE

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Sulphur oxides.

SULPHURIC ACID

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

5.3. Advice for firefighters.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Remove all containers containing the product from the fire, if it is safe to do so.

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).

SECTION 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. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

SECTION 6. Accidental release measures. ... / >>

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.

SECTION 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.

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.

SECTION 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 TLV-ACGIH	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC. ACGIH 2016

SULPHURIC ACID

Threshold Limit Value.

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

MERCURY (II) SULFATE

Threshold Limit Value.

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

SILVER SULFATE

Threshold Limit Value.

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

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

POTASSIUM DICHROMATE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH	-	0.05			

Legend:

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

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).

MERCURY (II) SULFATE

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms: 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).

SULPHURIC ACID

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

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 (see Directive 89/686/EEC and standard EN ISO 20344). 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 and 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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance		dense liquid	
Colour		orange	
Odour		odourless	
Odour threshold.		Not available.	
pH.		< 1	
Melting point / freezing point.		Not available.	
Initial boiling point.		Not available.	
Boiling range.		Not available.	
Flash point.	>	93 °C.	(199,4 °F)
Evaporation rate		Not available.	
Flammability (solid, gas)		Not available.	
Lower inflammability limit.		Not available.	
Upper inflammability limit.		Not available.	
Lower explosive limit.		Not available.	

SECTION 9. Physical and chemical properties. ... / >>

Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	1.708
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 available.
Oxidising properties	Not available.
9.2. Other information.	
Total solids (250°C / 482°F)	89,73 %

SECTION 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.

SILVER SULFATE

Has a corrosive effect.

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.

SILVER SULFATE

Sensitivity to light. Decomposes on exposure 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

SECTION 10. Stability and reactivity. ... / >>

Strong heating.

10.5. Incompatible materials.

SULPHURIC ACID

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

SILVER SULFATE

Aluminium, Mild steel.

10.6. Hazardous decomposition products.

SULPHURIC ACID

SULPHURIC ACID 98%: Sulphur oxide.

SECTION 11. Toxicological information.

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects.

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.

MERCURY (II) SULFATE

Acute inhalation toxicity, absorption, Symptoms: Lung oedema, The substance has delayed effects - Acute dermal toxicity, LD50 rat: 625 mg/kg, absorption - Specific target organ toxicity, repeated exposure: May cause damage to organs through prolonged or repeated exposure.

SILVER SULFATE

Acute inhalation toxicity, Symptoms: Possible damages:, mucosal irritations - Acute dermal toxicity, Symptoms: After long-term exposure to the chemical:, discolouration - Skin irritation rabbit, Result: No irritation - Eye irritation, rabbit, Result: Causes burns, Risk of permanent damage due to staining of the cornea. Causes serious eye damage.

SULPHURIC ACID

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

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	22,700 mg/l
LD50 (Oral) of the mixture:	18150,036 mg/kg
LD50 (Dermal) of the mixture:	500,001 mg/kg

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
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SULPHURIC ACID

LD50 (Oral).	2140 mg/kg Rat
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SKIN CORROSION / IRRITATION.

Corrosive for the skin.

SERIOUS EYE DAMAGE / IRRITATION.

Causes serious eye damage.

SECTION 11. Toxicological information. ... / >>

RESPIRATORY OR SKIN SENSITISATION.

Sensitising for the skin.

GERM CELL MUTAGENICITY.

May cause genetic defects.

CARCINOGENICITY.

May cause cancer.

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.

SECTION 12. Ecological information.

This product is dangerous for the environment and highly toxic for 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 <i>Lepomis macrochirus</i>
EC50 - for Crustacea.	0.035 mg/l/48h <i>Daphnia magna</i>
EC50 - for Algae / Aquatic Plants.	0.31 mg/l/72h <i>Pseudokirchneriella subcapitata</i>
Chronic NOEC for Fish.	6 <i>Pimephales promelas</i>
Chronic NOEC for Crustacea.	0.016 <i>Daphnia</i>

MERCURY (II) SULFATE

LC50 - for Fish.	0.19 mg/l/96h <i>Pimephales promelas</i>
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SILVER SULFATE

EC50 - for Crustacea.	0.004 mg/l/48h
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SULPHURIC ACID

LC50 - for Fish.	42 mg/l/96h <i>Gambusia affinis</i>
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
Biodegradability: Information not available.	

SULPHURIC ACID

Solubility in water.	1000 - 10000 mg/l
Biodegradability: Information not available.	

12.3. Bioaccumulative potential.

POTASSIUM DICHROMATE

BCF.	17.4
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SECTION 12. Ecological information. ... / >>

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 greater than 0,1%.

12.6. Other adverse effects.

POTASSIUM DICHROMATE

Discharge into the environment must be avoided.

MERCURY (II) SULFATE

Discharge into the environment must be avoided.

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 be avoid.

SECTION 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.

Waste transportation may be subject to dangerous goods transport regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 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

14.3. 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

SECTION 14. Transport information. ... / >>**14.5. Environmental hazards.**ADR / RID: NO
IMDG: NO
IATA: NO**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: Pass.: Special Instructions:	Maximum quantity: 30 L Maximum quantity: 1 L A3, A803	Packaging instructions: 855 Packaging instructions: 851

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

Information not relevant.

SECTION 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):

No component(s) listed.

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.

Clean Water Act – Toxic Pollutants:

No component(s) listed.

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:

7778-50-9	POTASSIUM DICHROMATE
7783-35-9	MERCURY (II) SULFATE
7664-93-9	SULPHURIC ACID

EPCRA 302 EHS TPQ:

7783-35-9	MERCURY (II) SULFATE
7664-93-9	SULPHURIC ACID

EPCRA 304 EHS RQ:

7783-35-9	MERCURY (II) SULFATE
7664-93-9	SULPHURIC ACID

CERCLA RQ:

7778-50-9	POTASSIUM DICHROMATE
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SECTION 15. Regulatory information. ... / >>

7783-35-9 MERCURY (II) SULFATE
7664-93-9 SULPHURIC ACID

EPCRA 313 TRI:

7778-50-9 POTASSIUM DICHROMATE
7783-35-9 MERCURY (II) SULFATE
7664-93-9 SULPHURIC ACID

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

7783-35-9 MERCURY (II) SULFATE

State Regulations.

Massachusetts:

7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE
7778-50-9 POTASSIUM DICHROMATE

Minnesota:

7664-93-9 SULPHURIC ACID

New Jersey:

7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE
7778-50-9 POTASSIUM DICHROMATE

New York:

7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE
7778-50-9 POTASSIUM DICHROMATE

Pennsylvania:

7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE
7778-50-9 POTASSIUM DICHROMATE

California:

7664-93-9 SULPHURIC ACID
7783-35-9 MERCURY (II) SULFATE
7778-50-9 POTASSIUM DICHROMATE

Proposition 65:

This product does not contain any substances known to the State of California to cause cancer, reproductive harm or birth defects.

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.

Canadian WHMIS.

Information not available.

SECTION 16. Other information.

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

Ox. Sol. 2	Oxidising solid, category 2
Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Carc. 1B	Carcinogenicity, category 1B
Muta. 1B	Germ cell mutagenicity, category 1B
Repr. 1B	Reproductive toxicity, category 1B

SECTION 16. Other information. ... / >>

Acute Tox. 1	Acute toxicity, category 1
Acute Tox. 2	Acute toxicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Skin Corr. 1A	Skin corrosion, category 1A
Skin Corr. 1B	Skin corrosion, category 1B
Eye Dam. 1	Serious eye damage, category 1
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Sens. 1	Skin sensitization, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H350	May cause cancer.
H340	May cause genetic defects.
H360FD	May damage fertility. Suspected of damaging 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.
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
- 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

SECTION 16. Other information. ... / >>

- 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

- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication 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
- Massachusetts 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.

Changes to previous review:

The following sections were modified:

08 / 09 / 14.