Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878

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

1.1. Product identifier

Code	HI93754E-0
Product name	COD Medium Range 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 - Mercury Free 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 Romania	(Salaj)
	Tel.	+40 260607700	
	Fax	+40 260607700	
e-mail address of the competent person responsible for the Safety Data Sheet	msds@hanna.ro		

1.4. Emergency telephone number

For urgent inquiries refer to	International CHEMTREC 24 hours/365 days: +1 7035273887; UK, London: +44 2038073798

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 (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Substance or mixture corrosive to metals, category 1	H290	May be corrosive to metals.
Carcinogenicity, category 1B	H350	May cause cancer.
Germ cell mutagenicity, category 1B	H340	May cause genetic defects.
Reproductive toxicity, category 1B	H360FD	May damage fertility. May damage the unborn child.
Acute toxicity, category 4	H302	Harmful if swallowed.
Skin corrosion, category 1A	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.
Respiratory sensitization, category 1B	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization, category 1A	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment, acute toxicity, category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	H410	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

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. May damage the unborn child.
H302	Harmful if swallowed.
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.
H410	Very toxic to aquatic life with long lasting effects. Restricted to professional users.

Precautionary statements:

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.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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.
P310	Immediately call a POISON CENTER or doctor.
P391	Collect spillage.

Contains: POTASSIUM DICHROMATE
SULPHURIC ACID

The product is classified both in acute and long-term aquatic hazard categories: it is possible to use only hazard statement H410 on the label.

2.3. Other hazards

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

The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification		x = Conc. %	Classification (EC) 1272/2008 (CLP)
SULPHURIC ACID			
INDEX	016-020-00-8	75 ≤ x < 99	Met. Corr. 1 H290, Skin Corr. 1A H314, Eye Dam. 1 H318, Classification note according to Annex VI to the CLP Regulation: B
EC	231-639-5		Met. Corr. 1 H290: ≥ 0,1%, Skin Corr. 1A H314: ≥ 15%, Skin Irrit. 2 H315: ≥ 5% - < 15%, Eye Dam. 1 H318: ≥ 15%, Eye Irrit. 2 H319: ≥ 5% - < 15%
CAS	7664-93-9		
REACH Reg.	01-2119458838-20		
SILVER SULFATE			
INDEX		0,3 ≤ x < 1	Eye Dam. 1 H318, Aquatic Acute 1 H400 M=1000, Aquatic Chronic 1 H410 M=100
EC	233-653-7		
CAS	10294-26-5		
POTASSIUM DICHROMATE			
INDEX	024-002-00-6	0,3 ≤ x < 1	Ox. Sol. 2 H272, Carc. 1B H350, Muta. 1B H340, Repr. 1B H360FD, Acute Tox. 2 H330, Acute Tox. 3 H301, Acute Tox. 4 H312, STOT RE 1 H372, Skin Corr. 1B H314, Eye Dam. 1 H318, STOT SE 3 H335, Resp. Sens. 1 H334, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=1, Classification note according to Annex VI to the CLP Regulation: 3
EC	231-906-6		STOT SE 3 H335: ≥ 5%
CAS	7778-50-9		LD50 Oral: 90,5 mg/kg, ATE Dermal: 1100 mg/kg, LC50 Inhalation mists/powders: 0,088 mg/l/4h

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

REACH Reg. 01-2119454792-32

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

In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.
EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.
INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Rinse your mouth with running water. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuer protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

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

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

DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

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!.

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

If symptoms occur, whether acute or delayed, consult a doctor.

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

SECTION 5. Firefighting 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

SECTION 5. Firefighting measures ... / >>

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

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

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
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).

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. 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.

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.

Storage class TRGS 510 (Germany): 6.1A

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

CZE	Česká Republika	NAŘÍZENÍ VLÁDY ze dne 10. května 2021, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při práci
DEU	Deutschland	Forschungsgemeinschaft MAK- und BAT-Werte-Liste 2022 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 58
ESP	España	Límites de exposición profesional para agentes químicos en España 2023
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021
GRC	Ελλάδα	Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ ''σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία''»
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
HRV	Hrvatska	Pravilnik o izmjenama i dopunama Pravilnika o zaštiti radnika od izloženosti opasnimkemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
LTU	Lietuva	Jsakymas dėl lietuvos higienos normos hn 23:2011 „cheminių medžiagų profesinio poveikio ribiniai dydžiai. Matavimo ir poveikio vertinimo bendrieji reikalavimai“ patvirtinimo
NLD	Nederland	Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit
POL	Polska	Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy
ROU	România	Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006
SVK	Slovensko	NARIADENIE VLÁDY Slovenskej republiky z 12. augusta 2020, ktorým sa mení a dopĺňa nariadenie vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; 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 2023

POTASSIUM DICHROMATE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLA	ESP	0,05				Cr
VLEP	FRA	0,001		0,005		
AK	HUN			0,05		
TLV	ROU	0,05				
WEL	GBR	0,05				
TLV-ACGIH		0,05				

Predicted no-effect concentration - PNEC

Normal value in fresh water	0	mg/l
Normal value for fresh water sediment	0,15	mg/kg/d
Normal value for marine water sediment	0,15	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					0,01 mg/m3	VND	0,01 mg/m3	VND

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

SILVER SULFATE

Threshold Limit Value						
Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	0,01				Ag compound
VLA	ESP	0,01				Ag compound
VLEP	FRA	0,01				Ag compound
AK	HUN	0,01				Ag compound
NDS/NDSCh	POL	0,05				Ag compound
TLV	ROU	0,01				Ag compound
WEL	GBR	0,01				Ag compound
OEL	EU	0,01				Ag compound
TLV-ACGIH		0,01				Ag compound

Predicted no-effect concentration - PNEC		
Normal value in fresh water	0,04	µg/L
Normal value in marine water	0,86	µg/L
Normal value for fresh water sediment	438	mg/kg
Normal value for marine water sediment	438	mg/kg
Normal value of STP microorganisms	0,025	mg/l
Normal value for the terrestrial compartment	0,794	mg/kg/d

SULPHURIC ACID

Threshold Limit Value						
Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	CZE	1		2		
AGW	DEU	0,1		0,1		INHAL
MAK	DEU	0,1		0,1		INHAL
VLA	ESP	0,05				
VLEP	FRA	0,05		3		THORA
TLV	GRC	0,05				
AK	HUN	1		1		
GVI/KGVI	HRV	1		3		
VLEP	ITA	0,05				THORA
RD	LTU	1		3		
TGG	NLD	0,05				THORA
NDS/NDSCh	POL	1		3		
TLV	ROU	0,5		1		
NPEL	SVK	0,1		0,1		
WEL	GBR	0,05				THORA
OEL	EU	0,05				
TLV-ACGIH		0,2				

Predicted no-effect concentration - PNEC		
Normal value in fresh water	0,0025	mg/l
Normal value in marine water	0,00025	mg/l
Normal value for fresh water sediment	0,002	mg/kg
Normal value for marine water sediment	0,002	mg/kg
Normal value of STP microorganisms	8,8	mg/l

Health - Derived no-effect level - DNEL / DMEL								
	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					0,1 mg/m3	VND	0,05 mg/m3	VND

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

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 în urină (în timpul lucrului).

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

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

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.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.
Provide an emergency shower with face and eye wash station.
The product must be used inside a closed circuit, in a well-ventilated environment and with strong localised aspiration systems in place.
HAND PROTECTION
Protect hands with category III work gloves.
The following should be considered when choosing work glove material (see standard EN 374): compatibility, degradation, permeability time.
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 III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear a hood visor or protective visor combined with airtight goggles (see standard EN ISO 16321).
In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.
RESPIRATORY PROTECTION
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. Use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387).
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 (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.
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

Properties	Value	Information
Appearance	dense liquid	
Colour	orange	
Odour	odourless	
Melting point / freezing point	not available	
Initial boiling point	not available	
Flammability	not available	
Lower explosive limit	not available	
Upper explosive limit	not available	
Flash point	not applicable	
Auto-ignition temperature	not available	
Decomposition temperature	not available	
pH	0,2	Method:ASTM D1293-18 Temperature: 25 °C
Kinematic viscosity	not available	
Solubility	soluble in water	
Partition coefficient: n-octanol/water	not available	
Vapour pressure	not available	
Density and/or relative density	1,70	
Relative vapour density	not available	
Particle characteristics	not applicable	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

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

9.2.2. Other safety characteristics

Total solids (250°C / 482°F)	89,57 %
Explosive properties	not applicable
Oxidising properties	not determined

SECTION 10. Stability and reactivity

10.1. Reactivity

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

SILVER SULFATE
Has a corrosive effect.

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.

SILVER SULFATE
Sensitivity to light. Decomposes on exposure to light.

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

10.3. Possibility of hazardous reactions

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

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.

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.

10.4. Conditions to avoid

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

POTASSIUM DICHROMATE
Strong heating.

10.5. Incompatible materials

SILVER SULFATE
Aluminium, Mild steel.

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.

SECTION 11. Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

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.

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 seriuos eye damage, risk of blindness!

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

ATE (Inhalation - vapours) of the mixture:	Not classified (no significant component)
ATE (Inhalation - gas) of the mixture:	Not classified (no significant component)
ATE (Oral) of the mixture:	Acute Tox. 4
ATE (Dermal) of the mixture:	Not classified (no significant component)

POTASSIUM DICHROMATE

LD50 (Dermal):	14 mg/kg Rabbit
ATE (Dermal):	1100 mg/kg estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)
LD50 (Oral):	90,5 mg/kg Rat
LC50 (Inhalation mists/powders):	0,088 mg/l/4h 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

SECTION 11. Toxicological information ... / >>

GERM CELL MUTAGENICITY

May cause genetic defects

CARCINOGENICITY

May cause cancer

REPRODUCTIVE TOXICITY

May damage fertility - May damage the unborn child

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

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

12.1. Toxicity

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
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	

12.3. Bioaccumulative potential

POTASSIUM DICHROMATE	
BCF	17,4

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 ≥ than 0,1%.

12.6. Endocrine disrupting properties

POTASSIUM DICHROMATE
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 to be avoid.

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Waste transportation may be subject to ADR restrictions.
The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE.
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 or ID number

ADR / RID, IMDG, IATA: UN 2922

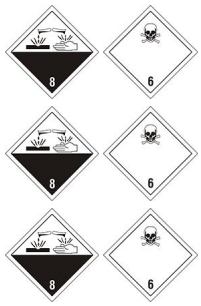
14.2. UN proper shipping name

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

SECTION 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:	NO
IMDG:	not marine pollutant
IATA:	NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 86 Special provision: 274	Limited Quantities: 1 lt	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 1 lt	
IATA:	Cargo: Passengers: Special provision:	Maximum quantity: 30 L Maximum quantity: 1 L A3, A4, A803	Packaging instructions: 855 Packaging instructions: 851

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EU: E1

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product
Point 3
Contained substance
Point 75
Point 28-29-30-47-72 POTASSIUM DICHROMATE
REACH Reg.: 01-2119454792-32

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Restricted explosives precursor
The acquisition, introduction, possession or use of that restricted explosives precursor by members of the general public is subject to a restriction as set out in Article 5(1) and (3). Restricted explosives precursors shall not be made available to, or introduced, possessed or used by members of the general public.
The acquisition, introduction, possession or use of that regulated explosives precursor by members of the general public is subject to reporting obligations as set out in Article 9.
All suspicious transactions and significant disappearances and thefts must be reported to the relevant national contact point.

Substances in Candidate List (Art. 59 REACH)
POTASSIUM DICHROMATE
REACH Reg.: 01-2119454792-32

Substances subject to authorisation (Annex XIV REACH)
POTASSIUM DICHROMATE
REACH Reg.: 01-2119454792-32
Sunset Date: 21/09/2017

SECTION 15. Regulatory information ... / >>

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this health-dangerous chemical agent must undergo sanitary checks carried out in compliance with 2004/37/EC directive.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)
WGK 3: Severe hazard to waters

15.2. Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances
SULPHURIC ACID

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
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
Skin Corr. 1A	Skin corrosion, category 1A
Skin Corr. 1B	Skin corrosion, category 1B
Skin Corr. 1C	Skin corrosion, category 1C
Skin Corr. 1	Skin corrosion, category 1
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Resp. Sens. 1	Respiratory sensitization, category 1
Resp. Sens. 1B	Respiratory sensitization, category 1B
Skin Sens. 1	Skin sensitization, category 1
Skin Sens. 1A	Skin sensitization, category 1A
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. May damage the unborn child.
H330	Fatal if inhaled.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H372	Causes damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
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:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road

SECTION 16. Other information ... / >>

- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- 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
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- 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.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

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2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
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- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

SECTION 16. Other information ... / >>

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
Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:
The following sections were modified:
02 / 03 / 04 / 11 / 13 / 14 / 15 / 16.