



SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the CPR)

Revision Date 11/05/2014

Version 1.2

SECTION 1. Identification

Product identifier

Product number	104864
Product name	Potassium dichromate for analysis EMSURE® ACS,ISO,Reag. Ph Eur
CAS-No.	7778-50-9

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	613-996-6666 CANUTEC (Canada) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Oxidizing solid, Category 2, H272
Acute toxicity, Category 3, Oral, H301
Acute toxicity, Category 2, Inhalation, H330
Acute toxicity, Category 4, Dermal, H312
Skin corrosion, Category 1B, H314
Respiratory sensitization, Category 1, H334
Skin sensitization, Category 1, H317
Germ cell mutagenicity, Category 1B, H340
Carcinogenicity, Category 1B, H350
Reproductive toxicity, Category 1B, H360FD
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335
Specific target organ systemic toxicity - repeated exposure, Category 1, H372
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

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Hazard pictograms



Signal Word
Danger

Hazard Statements

H340 May cause genetic defects.
H350 May cause cancer.
H360FD May damage fertility. May damage the unborn child.
H272 May intensify fire; oxidizer.
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201 Obtain special instructions before use.
P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$K_2Cr_2O_7$	$Cr_2K_2O_7$ (Hill)
Molar mass	294.19 g/mol	

Hazardous ingredients

Chemical Name (Concentration)
CAS-No.

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potassium dichromate (<= 100 %)
7778-50-9

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

Skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

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 oxidizers, 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 sensitization 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 diarrhea, vomiting (aspiration pneumonia!), spasms, circulatory collapse, unconsciousness, formation of methemoglobin. 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(R)).
Risk of blindness!

Indication of any immediate medical attention and special treatment needed

Carefully clean wounds and cover with sterile dressing material.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No metal containers.

Tightly closed. Dry. Do not store near combustible materials. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +5°C to +30°C (+41°F to +86°F).

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SECTION 8. Exposure controls/personal protection**Exposure limit(s)***Ingredients*

Basis	Value	Threshold limits	Remarks
<i>potassium dichromate 7778-50-9</i>			
CAD AB OEL	Time Weighted Average (TWA):	0.01 mg/m ³	Expressed as: as Cr
	Time Weighted Average (TWA):	0.05 mg/m ³	Expressed as: as Cr
CAD BC OEL	Ceiling Limit Value:	0.1 mg/m ³	Expressed as: as Cr
	Time Weighted Average (TWA):	0.01 mg/m ³	Expressed as: as Cr
	Time Weighted Average (TWA):	0.025 mg/m ³	Expressed as: as Cr
CAD MB OEL	Time Weighted Average (TWA):	0.01 mg/m ³	Expressed as: as Cr
	Time Weighted Average (TWA):	0.05 mg/m ³	Expressed as: as Cr
CAD ON OEL	Time Weighted Average (TWAEV):	0.01 mg/m ³	Expressed as: as Cr
	Time Weighted Average (TWAEV):	0.05 mg/m ³	Expressed as: as Cr
OEL (QUE)	Time Weighted Average (TWA):	0.05 mg/m ³	Exposure must be minimized. Expressed as: as Cr
	Time Weighted Average (TWA):	0.01 mg/m ³	Exposure must be minimized. Expressed as: as Cr
			Recirculation prohibited Expressed as: as Cr
			Recirculation prohibited Expressed as: as Cr

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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Other protective equipment:

Acid-resistant protective clothing.

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	orange
Odor	odorless
Odor Threshold	Not applicable
pH	3.6 at 100 g/l
Melting point	398 °C
Boiling point/boiling range	> 932 °F (> 500 °C) at 1,013 hPa
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	Not applicable
Relative vapor density	No information available.
Density	ca. 2.7 g/cm ³ at 68 °F (20 °C) Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	130 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	No information available.

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Autoignition temperature	No information available.
Decomposition temperature	ca. 932 °F (500 °C)
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	May intensify fire; oxidizer. The substance or mixture is classified as oxidizing with the category 2.
Ignition temperature	Not applicable
Bulk density	1,250 kg/m ³

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Iron, magnesium, hydrazine and derivatives, hydroxylamine, ammonium nitrate, Boron, Acetic anhydride, oxidizable substances, Reducing agents, sulfuric acid, silicon

Exothermic reaction with:

anhydrides, phosphides, Sulfides, nitrides, Fluorine

Risk of ignition or formation of inflammable gases or vapors with:

organic combustible substances, glycerol, Powdered metals, hydrides, alkali compounds

Acetone, with, sulfuric acid

Generates dangerous gases or fumes in contact with:

hydrochloric acid

Conditions to avoid

Strong heating.

Incompatible materials

no information available

Hazardous decomposition products

no information available

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SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Acute oral toxicity

LD50 Rat: 90.5 mg/kg

OECD Test Guideline 401

absorption

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity

LC50 Rat: 0.083 mg/l; 4 h

OECD Test Guideline 403

absorption

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

Acute dermal toxicity

LD50 Rat: 1,170 mg/kg

(IUCLID)

absorption

Skin irritation

Rabbit

Result: Causes burns.

OECD Test Guideline 404

Causes burns.

Eye irritation

Causes serious eye damage.

Risk of blindness!

Sensitization

Sensitization test (Magnusson and Kligman):

Result: positive

(IUCLID)

Patch test: human

Result: positive

(IUCLID)

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

May cause an allergic skin reaction.

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CMR effects

Carcinogenicity:

May cause cancer.

Mutagenicity:

May cause genetic defects.

Teratogenicity:

May damage the unborn child.

Reproductive toxicity:

May damage fertility.

Specific target organ systemic toxicity - single exposure

Target Organs: Respiratory system

May cause respiratory irritation.

Specific target organ systemic toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 1: Carcinogenic to humans
	potassium dichromate 7778-50-9
OSHA	
	potassium dichromate 7778-50-9
NTP	Known carcinogen.
	potassium dichromate 7778-50-9
ACGIH	A1: Confirmed human carcinogen
	potassium dichromate 7778-50-9

Further information

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This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 26.13 mg/l; 96 h (IUCLID)

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LC50 *Lepomis macrochirus* (Bluegill sunfish): 0.131 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates

Immobilization EC50 *Daphnia magna* (Water flea): 0.62 mg/l; 48 h
OECD Test Guideline 202

EC50 *Daphnia magna* (Water flea): 0.035 mg/l; 48 h (External MSDS)

Toxicity to algae

IC50 *Chlorella vulgaris* (Fresh water algae): 0.16 - 0.59 mg/l; 96 h (IUCLID)

EC50 *Pseudokirchneriella subcapitata* (green algae): 0.31 mg/l; 72 h (External MSDS)

Toxicity to bacteria

microtox test EC50 *Photobacterium phosphoreum*: 58 mg/l; 30 min

Toxicity to fish (Chronic toxicity)

NOEC *Pimephales promelas* (fathead minnow): 6 mg/l; 7 d
(External MSDS)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

NOEC *Daphnia*: 0.016 - 0.064 mg/l; 7 d
(External MSDS)

Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 3086
Proper shipping name	TOXIC SOLID, OXIDIZING, N.O.S. (POTASSIUM DICHROMATE)
Class	6.1 (5.1)
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

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UN number UN 3086
Proper shipping name TOXIC SOLID, OXIDIZING, N.O.S. (POTASSIUM DICHROMATE)
Class 6.1 (5.1)
Packing group II
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 3086
Proper shipping name TOXIC SOLID, OXIDIZING, N.O.S. (POTASSIUM DICHROMATE)
Class 6.1 (5.1)
Packing group II
Environmentally hazardous --
Special precautions for user yes
EmS F-A S-Q

SECTION 15. Regulatory information

TSCA 12b

Ingredients

potassium dichromate 7778-50-9

Canada

WHMIS Classification

C Oxidizing Material
D1A Very Toxic Material Causing Immediate and Serious Toxic Effects
D2A Very Toxic Material Causing Other Toxic Effects
D2B Toxic Material Causing Other Toxic Effects
E Corrosive Material

Oxidizer, Highly toxic by ingestion, Highly toxic by inhalation, Teratogen, Carcinogen, Reproductive hazard, Respiratory sensitizer, Skin sensitizer, Mutagen, Corrosive to skin, Corrosive to eyes, Corrosive by inhalation.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

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Labeling

Hazard pictograms



Signal Word
Danger

Hazard Statements

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

Precautionary Statements

Prevention

P201 Obtain special instructions before use.
P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Restricted to professional users.

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H330	Fatal if inhaled.
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H335	May cause respiratory irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 11/05/2014

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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