



CHROMIUM

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 2012

Revision date: 07-Nov-2014

Supersedes: New MSDS

SDS Number: 30228

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name: Potassium Dichromate

Other means of identification

Synonyms Potassium Bichromate; Chromic Acid; Dipotassium salt

Recommended use of the chemical and restrictions on use

Product Use Description: Surface treatment Intermediate

Details of the supplier of the safety data sheet

Company/Undertaking Identification

Elementis Chromium Inc.
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Corpus Christi, Texas 78407
USA
Tel: +1 (800) 531- 3188

Elementis Chromium Inc.
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USA
Tel: +1 (910) 675-7223

Distributed by:
SAL Chemical
3036 Birch Drive,
Weirton, WV 26062
304.748.8200 - Phone
304.797.8751 - Fax

Emergency Telephone Number

For hazardous materials incidents only call
CHEMTREC Emergency Response Number: 1-800-424-9300 (+1-703-527-3887
International)

sds.chromium@elementis.com

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|--|---------------------------|
| Acute Toxicity - Oral | Category 3 |
| Acute Toxicity - Dermal | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 2 |
| Skin corrosion/irritation | Category 1 Sub-category B |
| Serious eye damage/eye irritation | Category 1 |
| Respiratory sensitization | Category 1A |
| Skin Sensitization | Category 1 |
| Germ Cell Mutagenicity | Category 1B |
| Carcinogenicity | Category 1B |
| Reproductive toxicity | Category 1B |
| Specific target organ toxicity (repeated exposure) | Category 1 |
| Oxidizing solids | Category 2 |

Label Elements

EMERGENCY OVERVIEW

Danger

Hazard Statements

Toxic if swallowed
Harmful in contact with skin
Causes severe skin burns and eye damage
May cause an allergic skin reaction
Fatal if inhaled
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause genetic defects
May cause cancer
May damage fertility or the unborn child
Very toxic to aquatic life with long lasting effects
Causes damage to organs through prolonged or repeated exposure
May intensify fire; oxidizer

**Appearance:** Crystalline**Physical state:** Solid**Odor:** Odourless**Precautionary Statements - Prevention**

Obtain special instructions before use
Do not breathe dust/fume/gas/mist/vapors/spray
Do not get in eyes, on skin, or on clothing
Do not eat, drink or smoke when using this product
Wash hands thoroughly after handling
Wear respiratory protection
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing should not be allowed out of the workplace
Keep/Store away from clothing/ incompatible /combustible materials
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Avoid release to the environment

Precautionary Statements - Response

IF exposed: Call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Take off contaminated clothing and wash before reuse
Call a POISON CENTER or doctor/physician
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting
In case of fire: Use Water spray, fog or regular foam for extinction
Carbon dioxide (CO₂)

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)**Other Information**

Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Chemical Family Inorganic Salt.
Formula K₂Cr₂O₇

| Components | CAS-No | Weight % |
|----------------------|-----------|----------|
| Potassium dichromate | 7778-50-9 | 100 % |

4. FIRST AID MEASURES**FIRST AID MEASURES**

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, apply artificial respiration. Call a physician immediately.

Skin contact: Wash off immediately with soap and plenty of water. Call a physician immediately.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Ingestion Call a physician or Poison Control Center immediately. Do not induce vomiting without medical advice. If victim is fully conscious, give a cupful of water. If swallowed, seek medical advice immediately and show this SDS or label. Never give anything by mouth to an unconscious person.

Protection of first-aiders: Avoid contact with skin and eyes.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects: Burning. Risk of serious damage to eyes. Difficulty in breathing. Dizziness. Drowsiness. Coughing and/ or wheezing. Abdominal pain, nausea, vomiting, diarrhea. May cause serious damage to health. Coma. Increased pulse rate. Weakness. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Use Water spray, fog or regular foam for extinction
Dry chemical
Carbon dioxide (CO₂)
Use extinguishing agent suitable for type of surrounding fire

Extinguishing media which must not be used for safety reasons

None

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
May intensify fire; oxidizer

Unusual Fire and Explosion Hazards:
Emits toxic fumes under fire conditions

Hazardous combustion products:
Chromium oxides

Explosion data

Explosive properties:
Not explosive

Reactivity Hazard:
May intensify fire; oxidizer May react with oxidizable materials

Special protective equipment for fire-fighters
In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment.

Other Information: See Section 12 for additional information.

Environmental precautions

Environmental precautions: Do not allow material to contaminate ground water system. Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Do not allow any environmental contamination. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Clean-up methods: Do not create a powder cloud by using a brush or compressed air. Take up with a HEPA vacuum or mechanically and collect in suitable container for disposal. Do not use combustible materials for containment or clean-up. Clean contaminated surface thoroughly. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Do not breathe vapours/dust. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling. Wear personal protective equipment.

Conditions for safe storage, including any incompatibilities

Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep product and empty container away from incompatible materials.

Additional Storage: Keep away from heat and sources of ignition

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Guidelines**

| Components | ACGIH TLV | AIHA TLV | OSHA TWA | IDLH: |
|-----------------------------------|---|----------|----------|-------|
| Potassium dichromate 7778-50-9 | TWA (8hr): 0.05 mg/m ³ as Cr(VI) | | | |

| Components | OSHA PEL (8h TWA) | OSHA Action Level (8h TWA) | OES - Short-term STEL |
|----------------------|----------------------------|-------------------------------|--------------------------|
| Potassium dichromate | 5 ug/m ³ Cr(IV) | 2.5 ug/m ³ Cr(IV) | |

Appropriate engineering controls**Engineering Measures**

Maintain adequate engineering controls and/or ventilation to keep hazardous ingredients below their statutory limits. Use an approved respirator whenever exposure limits are exceeded. It maybe necessary, dependent on the users assessment of process employed to undertake a program of monitoring to demonstrate that statutory exposure limits are not exceeded

Individual protection measures, such as personal protective equipment**Eye protection**

Wear chemical goggles and full face shield appropriate for risk of exposure. Tightly fitting safety goggles.

Skin and body protection

Footwear and protective clothing should be selected according to the risk of exposure

Respiratory protection:

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Use chemical resistant gloves

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are close to the workstation location. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

| | |
|------------------------|-------------------|
| Physical state: | Solid |
| Appearance: | Crystalline |
| Odor: | Odourless |
| Color: | Red Orange |
| Odor Threshold | No data available |

| <u>Property</u> | <u>Values</u> | <u>Remarks / • Method</u> |
|-----------------------------|------------------------|---------------------------|
| pH | 4 | at 10 g/l at 20 C |
| Melting point/range: | 398 °C | |
| Freezing point: | No data available | |
| Boiling Point/Range | Not applicable | |
| Flash Point | Not applicable | |
| Evaporation rate | Not applicable | |
| Explosion limits: | No data available | |
| Vapor pressure | Not applicable | |
| Vapor density | Not applicable | |
| Density: | 2.68 g/cm ³ | @ 20 C |

| | |
|---|--------------------------|
| Water solubility | 10% w/w at 20 C |
| Solubility in other solvents | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Autoignition temperature | No data available |
| Decomposition temperature | aprox. 500 (°C) |
| Viscosity: | No data available |
| Explosive properties: | Not explosive |
| Oxidizing Properties | No information available |

Other Information

| | |
|--------------------------|--------------------|
| Percent Volatile: | Not applicable |
| Bulk Density | 100 ft/cm3 at 20 C |

10. STABILITY AND REACTIVITY**Reactivity**

Oxidizer. Contact with other material may cause fire

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

See reactivity above

Conditions to Avoid

Heat, flames and sparks. Exposure to moisture

Incompatible Materials:

Reducing agents Organic materials Readily oxidizable materials

Hazardous Decomposition Products

No decomposition if stored normally; At high temperatures Chromium oxides

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

| | |
|----------------------|--|
| Inhalation: | Fatal if inhaled. May cause irritation of respiratory tract. |
| Eye contact: | Causes burns. Risk of serious damage to eyes. |
| Skin contact: | Harmful in contact with skin. Causes severe burns. |
| Ingestion | Toxic if swallowed. May cause burns to mouth throat and stomach. |

Product Information

The data listed, below, is based on this or a similar product:

Component Information

| Components | LD50/Oral | LD50/Dermal | LC50/inhalation |
|-----------------------------------|----------------|--------------------|-----------------------|
| Potassium dichromate 7778-50-9 | 57 mg/kg (Rat) | 1.64 g/kg (Rabbit) | 0.094 mg/l (Rat - 4h) |

Information on Toxicological Effects**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

| | |
|--------------------|---|
| Corrosivity | Causes burns. Risk of serious damage to eyes. |
|--------------------|---|

Sensitization May cause sensitization by skin contact May cause allergy or asthma symptoms or breathing difficulties if inhaled

Mutagenic effects May cause genetic defects.

Carcinogenic effects: The table below indicates whether each agency has listed any ingredient as a carcinogen

| Components | ACGIH | IARC | NTP | OSHA |
|-----------------------------------|-------|-------------------------------|------------------|---------------|
| Potassium dichromate 7778-50-9 | | Group 1 - Carcinogen to human | Known Carcinogen | Cancer hazard |

Reproductive Toxicity: May impair fertility

Developmental Toxicity May cause harm to the unborn child.

Chronic Toxicity

Chronic toxicity: May cause damage to organs through prolonged or repeated exposure

Target Organ Effects: Eyes, Skin, Liver, kidney, and respiratory system, Central nervous system, Reproductive system.

Other Adverse Effects: No information available.

12. ECOLOGICAL INFORMATION

Product Information See below

Ecotoxicity

Very toxic to aquatic life with long lasting effects

| Components | Toxicity to Algae | Toxicity to Fish | Daphnia Magna (Water Flea) |
|-----------------------------------|-------------------|---|--|
| Potassium dichromate 7778-50-9 | | 96h, LC50, Pimephales promelas 37.0 mg/l as Cr | 24h, EC50, Daphnia magna: 0.53 mg/l |

Persistence and degradability:

Hexavalent chromium may react with particulate matter or pollutants to form Cr (III). In general, Chromium is removed from the atmosphere through wet and dry deposition.

Bioaccumulative potential:

Does not bioaccumulate

Mobility:

No data available

General Note:

Do not allow product to reach ground water, water course or sewage system.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues / unused products Do not contaminate ponds, waterways or ditches with chemical or used container Dispose of in accordance with Local and National regulations

Contaminated packaging Should be disposed of in accordance with Local and National regulations

RCRA Hazardous Waste:

RCRA: Characteristic Waste - D007 (Chromium)

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR):

UN-No: 3288
 Proper shipping name: Toxic solid, inorganic, n.o.s. (Potassium bichromate)
 Hazard Class: 6.1
 Packaging group: III
 Reportable Quantity (RQ): 10 lbs
 Marine pollutant: YES

International Air Transportation (ICAO/IATA):

UN-No: 3288
 Proper shipping name: Toxic solid, inorganic, n.o.s. (Potassium bichromate)
 Hazard Class: 6.1
 Hazard Labels: Toxic
 Packing group: III

International Maritime Organization (IMO/IMDG):

UN-No: 3288
 Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Potassium bichromate)
 Hazard Class: 6.1
 Hazard Labels: Toxic
 Packing Group: III
 EmS: F-A, S-A
 IMDG - Marine Pollutants : Yes

Surface Shipments in Europe (ADR/RID):

UN-No: 3288
 Proper shipping name: Toxic solid, inorganic, n.o.s. (Potassium bichromate)
 Hazard Class: 6.1
 Packing group: III
 Hazard Labels: Toxic
 Environmental hazard mark: Yes

15. REGULATORY INFORMATION

International Inventories

USA (TSCA): In Compliance
 EU (EINECS): In Compliance
 CANADA (DSL): In Compliance
 JAPAN (ENCS): In Compliance
 PHILIPPINES (PICCS): In Compliance
 KOREA (KECL): In Compliance
 China (IECSC): In Compliance
 AUSTRALIA (AICS): In Compliance
 NEW ZEALAND (NZIoC): In Compliance
 TAIWAN (NECSI): In Compliance

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
 ENCS - Japan Existing and New Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals
NECSI - Taiwan Inventory of Chemicals

Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Components | EPCRA (SARA Title III) Section 313 Toxic Chemical |
|-----------------------------------|---|
| Potassium dichromate 7778-50-9 | Listed |

SARA 311/312 Hazard Categories

Acute Health Hazard
 Chronic Health Hazard
 Reactive Hazard

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Components | U.S. - CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances | Toxic Pollutants | Priority Pollutants | Hazardous Substances |
|-----------------------------------|---|----------------------------|----------------------------|----------------------------|
| Potassium dichromate 7778-50-9 | Chromium compounds - 10 lb | Present (Chrome compounds) | Present (Chrome compounds) | Present (Chrome compounds) |

Clean Air Act: Hazardous Air Pollutant

| Components | Hazardous Air Polutants |
|----------------------|----------------------------|
| Potassium dichromate | Present (Chrome compounds) |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Components | CERCLA/SARA - Hazardous Substances and | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|-----------------------------------|--|---------------------------|--------------------------|
| Potassium dichromate 7778-50-9 | | Chrome compounds - 10 lbs | |

TSCA Section 12(b) Export Notification

| Components | TSCA Section 12(b) Export Notification |
|---|--|
| Potassium dichromate (CAS # 7778-50-9) | Section 6 0.1% see 40 CFR 749.68 Section 6 0.1% only those that can be used to treat water cooling systems |

State Regulations (RTK)

California Proposition 65

This Product contains the following substance (s) known to the state of California to cause cancer and/or developmental effects.
 Hexavalent chromium

Canada

WHMIS hazard class: C Oxidizing materials
D1A Very toxic materials
D2A Very toxic materials
D2B Toxic materials

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. OTHER INFORMATION

HMIS:

Health: 3 *
Flammability: 0
Physical Hazard: 1

Chronic Hazard Star Legend * = Chronic Health Hazard

Previous Revision Date: Not applicable

Key/Legend: N/A: Not applicable
N/D: Not determined
ppm: Parts per million
X: Listed

Prepared by Product Stewardship

The information provided in this Safety Data Sheet is correct to the best of ELEMENTIS' knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. The information relates only to the specific product designated and may not be valid for such product when used in combination with any other material or in any process, unless specified in this SDS. ELEMENTIS specifically disclaims any liability for any loss, injury or damage which may result from use or misuse of this product.

All chemicals should be handled only by competent personnel, within a controlled environment. It is the buyer's/user's responsibility to ensure that his activities comply with all applicable federal, state, provincial and local laws, and to determine the conditions necessary for the safe use of this product. ELEMENTIS urges each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product.

End of Safety Data Sheet