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

Product Identifier
Product name: Sodium Dichromate Dihydrate

Other means of identification
Synonyms: Sodium Bichromate

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.
3800 Buddy Lawrence Dr.
Corpus Christi, Texas 78407
USA
Tel: +1 (800) 531-3188

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 product is considered hazardous as defined under OSHA's Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity - Oral</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute Toxicity - Dermal</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation (Dusts/Mists)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Category 1A</td>
</tr>
<tr>
<td>Skin Sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Oxidizing solids</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label Elements

EMERGENCY OVERVIEW

Revision Number: 1.1
**Danger**

**Hazard Statements**
Toxic if swallowed
Harmful in contact with skin
Fatal if inhaled
Causes severe skin burns and eye damage
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure
Very toxic to aquatic life with long lasting effects
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 away from heat/sparks/open flames/hot surfaces. - No smoking
Keep/Store away from clothing/ incompatible /combustible materials
Avoid release to the environment

**Precautionary Statements - Response**
IF exposed or if you feel unwell: 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
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>7789-12-0</td>
<td>100 %</td>
</tr>
</tbody>
</table>

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**
Risk of serious damage to eyes. Difficulty in breathing. Dizziness. Drowsiness, Coughing and/or wheezing. Abdominal pain, nausea, vomiting, diarrhea. In extreme case it may cause serious damage to health. Circulatory collapse. Weakness. Increased pulse rate. Coma. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Indication of any immediate medical attention and special treatment needed**
Treat symptomatically.

**Notes to physician**
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use Water spray, fog or regular foam for extinction
Carbon dioxide (CO2)

**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:**
May emit 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 more information.

Environmental precautions

Environmental precautions:
Do not allow material to contaminate soil or 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 cool, 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

Revision Number: 1.1
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 may be necessary, dependent on the user's 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 and face before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks / * Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance:</td>
<td>Crystalline</td>
<td></td>
</tr>
<tr>
<td>Odor:</td>
<td>Odourless</td>
<td></td>
</tr>
<tr>
<td>Color:</td>
<td>Orange</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>4 (1% solution)</td>
<td></td>
</tr>
<tr>
<td>Melting point/range:</td>
<td>674.6 °F / 357°C</td>
<td></td>
</tr>
<tr>
<td>Freezing point:</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Explosion limits:</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Density:</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>Water Soluble (73% @ 20 °C)</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>752°F / 400°C</td>
<td></td>
</tr>
<tr>
<td>Viscosity:</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>
Explosive properties: Not explosive
Oxidizing Properties: May intensify fire; oxidizer

Other Information

Molecular weight: 298
Percent Volatile: Not applicable
Bulk Density: 70 - 80 lb/ft³

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

Product Information
Data obtained on this product or a similar product

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

Component Information

<table>
<thead>
<tr>
<th>Components</th>
<th>LD50/Oral</th>
<th>LD50/Dermal</th>
<th>LC50/inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>50 mg/kg (rat)</td>
<td>1000 mg/kg (rabbit)</td>
<td>0.124 mg/L 4hrs (rat)</td>
</tr>
</tbody>
</table>

Information on Toxicological Effects

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

Corrosivity: Causes severe burns Risk of serious damage to eyes
Sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause sensitization by skin contact
Mutagenic effects: May cause genetic defects
Carcinogenic effects: The table below indicates whether each agency has listed any ingredient as a carcinogen

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate 7789-12-0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1 - Carcinogen to human</td>
<td>Known Carcinogen</td>
<td>Cancer hazard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproductive Toxicity: May impair fertility May cause harm to the unborn child

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, Respiratory system, Central nervous system (CNS), Reproductive system.

Other Adverse Effects: No data available

12. ECOLOGICAL INFORMATION

Product Information: See below

Ecotoxicity:

Very toxic to aquatic life with long lasting effects

<table>
<thead>
<tr>
<th>Components</th>
<th>LC50</th>
<th>EC50</th>
<th>Bioaccumulation Concentration Factor</th>
<th>No Observable Effect Concentration/96hr/48hr/24hr (NOEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>33.2 mg/L (Pimephales promelas; 96hrs)</td>
<td>0.035 mg/L (Daphnia magna; 48hrs)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. Danger to drinking water if even small quantities leak into the ground.

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 federal, state and local regulations.

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

RCRA Hazardous Waste:
14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR):
- UN-No: 3288
- Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (SODIUM DICHROMATE)
- Hazard Class: 6.1
- Hazard Labels: 6.1
- Packaging group: III
- Reportable Quantity (RQ): 10
- Marine pollutant: YES

International Air Transport Association (IATA)
- UN-No: 3288
- Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (SODIUM DICHROMATE)
- Hazard Class: 6.1
- Hazard Labels: 6.1
- Packaging group: III

International Maritime Dangerous Goods (IMDG)
- UN-No: 3288
- Proper Shipping Name: TOXIC SOLID, INORGANIC, N.O.S. (SODIUM DICHROMATE)
- Hazard Class: 6.1
- Hazard Labels: 6.1
- Packing Group: III
- EmS: F-A, S-Q
- IMDG - Marine Pollutants: YES

Surface Shipments in Europe (ADR/RID):
- UN-No: 3288
- Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (SODIUM DICHROMATE)
- Packaging group: III
- Hazard Labels: 6.1
- Environmental hazard mark: YES

15. REGULATORY INFORMATION

International Inventories
- USA (TSCA): Complies
- EU (EINECS): Complies
- CANADA (DSL): Complies
- JAPAN (ENCS): Complies
- PHILIPPINES (PICCS): Complies
- KOREA (KECL): Complies
- China (IECSC): Complies
- AUSTRALIA (AICS): Complies
- NEW ZEALAND (NZIoC): Complies
- TAIWAN (NECI): Complies

Legend:
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- 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
NECI - Taiwan National Existing Chemical Inventory

Federal Regulations

OSHA 29 CFR 1910.1026 Hexavalent Chromium

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

<table>
<thead>
<tr>
<th>Components</th>
<th>EPCRA (SARA Title III) Section 313 Toxic Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>Chromium compound; N090</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
Reactive Hazard
Acute Health Hazard
Chronic Health 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)

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. - CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances</th>
<th>Toxic Pollutants</th>
<th>Priority Pollutants</th>
<th>Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>Chromium compounds - 10 lbs</td>
<td>Present (Chrome compounds)</td>
<td>Present (Chrome compounds)</td>
<td>Present (Chrome compounds)</td>
</tr>
</tbody>
</table>

Clean Air Act:

<table>
<thead>
<tr>
<th>Components</th>
<th>Hazardous Air Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>Present (Chrome compounds)</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA/SARA - Hazardous Substances and</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>Chrome compounds - 10 lbs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TSCA Section 12(b) Export Notification
This product does not contain chemicals that are required to be notified under the TSCA 12(b) Export Notification.

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 12(b) Export Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Dichromate, Dihydrate</td>
<td>Section 6 0.1% only those that can be used to treat water cooling systems</td>
</tr>
</tbody>
</table>

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. Chromium (hexavalent compounds)
16. OTHER INFORMATION

HMIS:  3*
Health:  3*
Flammability:  0
Physical Hazard:  1

Previous Revision Date:  26-Sep-2014

Key/Legend:

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

Prepared by  Product Stewardship

A component has been added to the formulation. SEE SECTION 2.
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