1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Potassium dichromate

Product Number: 207802
Brand: Sigma-Aldrich
Index-No.: 024-002-00-6

CAS-No.: 7778-50-9

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103 USA

Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing solids (Category 2), H272
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 1), H310
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Respiratory sensitisation (Category 1), H334
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - repeated exposure, Inhalation (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.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H272 May intensify fire; oxidiser.
H301 Toxic if swallowed.
H310 + H330  Fatal in contact with skin or if inhaled
H314  Causes severe skin burns and eye damage.
H318  Causes serious eye damage.
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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 if inhaled.
H410  Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201  Obtain special instructions before use.
P202  Do not handle until all safety precautions have been read and understood.
P210  Keep away from heat.
P220  Keep/Store away from clothing/combustible materials.
P221  Take any precaution to avoid mixing with combustibles.
P260  Do not breathe dust/fume/gas/mist/vapours/spray.
P262  Do not get in eyes, on skin, or on clothing.
P264  Wash skin thoroughly after handling.
P270  Do not eat, drink or smoke when using this product.
P271  Use only outdoors or in a well-ventilated area.
P273  Avoid release to the environment.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P284  Wear respiratory protection.
P301 + P310 + P330  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310  IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 + P310  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.
P308 + P313  IF exposed or concerned: Get medical advice/attention.
P362  Take off contaminated clothing and wash before reuse.
P370 + P378  In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391  Collect spillage.
P403 + P233  Store in a well-ventilated place. Keep container tightly closed.
P405  Store locked up.
P501  Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| Synonyms | : Potassium bichromate |
| Formula | : Cr₂K₂O₇ |
| Molecular weight | : 294.18 g/mol |
| CAS-No. | : 7778-50-9 |
| EC-No. | : 231-906-6 |
| Index-No. | : 024-002-00-6 |

<table>
<thead>
<tr>
<th>Hazardous components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
</tbody>
</table>

Sigma-Aldrich - 207802
Potassium dichromate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)

| Ox. Sol. 2; Acute Tox. 3; Acute Tox. 2; Acute Tox. 1; Skin Corr. 1B; Eye Dam. 1; Resp. Sens. 1; Mutat. 1B; Carc. 1B; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H272, H301, H310 + H330, H314, H318, H334, H340, H350, H360, H372, H410 | <= 100 % |

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Potassium oxides, Chromium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3 **Methods and materials for containment and cleaning up**
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in containers for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 **Reference to other sections**
For disposal see section 13.

---

**7. HANDLING AND STORAGE**

7.1 **Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition. For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Oxidizing hazardous materials

7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1 **Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1026 is stayed or is otherwise not in effect Substance listed; for more information see OSHA document 1910.1026</td>
</tr>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>TWA</td>
<td>0.050000 mg/m³</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation Cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen varies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>0.005000 mg/m³</td>
<td>OSHA Specifically Regulated Chemicals/Carcinogens</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1910.1026 This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen</td>
</tr>
</tbody>
</table>
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See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1026 is stayed or is otherwise not in effect. Substance listed; for more information see OSHA document 1910.1026.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>Total chromium</td>
<td>25,000 µg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

Remarks: End of shift at end of workweek

<table>
<thead>
<tr>
<th></th>
<th>Total chromium</th>
<th>10,000 µg/l</th>
<th>Urine</th>
<th>ACGIH - Biological Exposure Indices (BEI)</th>
</tr>
</thead>
</table>

Increase during shift
<table>
<thead>
<tr>
<th></th>
<th>Total chromium</th>
<th>Urine</th>
<th>ACGIH - Biological Exposure Indices (BEI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End of shift at end of workweek</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total chromium</td>
<td>25.0000 µg/l</td>
<td>Urine</td>
<td></td>
</tr>
<tr>
<td><strong>Urine</strong></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Increase during shift</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total chromium</td>
<td>10 µg/l</td>
<td>Urine</td>
<td></td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Appropriate engineering controls**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Personal protective equipment**

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

- **Full contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

- **Splash contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: crystalline

b) Odour
   No data available

c) Odour Threshold
   No data available

d) pH
   3.5 - 5.0 at 29.4 g/l at 25 °C (77 °F)

e) Melting point/freezing point
   Melting point/range: 398 °C (748 °F) - lit.

f) Initial boiling point and boiling range
   No data available

g) Flash point
   Not applicable

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   No data available

k) Vapour pressure
   No data available

l) Vapour density
   No data available

m) Relative density
   2.680 g/cm³

n) Water solubility
   ca.29.4 g/l at 20 °C (68 °F)

o) Partition coefficient: n-octanol/water
   log Pow: 5

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   No data available

t) Oxidizing properties
   The substance or mixture is classified as oxidizing with the category 2.

9.2 Other safety information
   No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
   No data available

10.2 Chemical stability
   Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   No data available

10.4 Conditions to avoid
   No data available

10.5 Incompatible materials
   Organic materials, Do not store near acids, Powdered metals, Hydrazine

10.6 Hazardous decomposition products
   Other decomposition products - No data available
   In the event of fire: see section 5
11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat - male - 168 mg/kg
LD50 Oral - Rat - female - 90.5 mg/kg
LC50 Inhalation - Rat - female - 4 h - 0.088 mg/l
LD50 Dermal - Rabbit - 14 mg/kg

Remarks: Lungs, Thorax, or Respiration: Acute pulmonary edema. Diarrhoea Prolonged skin contact may cause skin irritation and/or dermatitis.

No data available

**Skin corrosion/irritation**
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitisation**

**Germ cell mutagenicity**
May alter genetic material.
In vivo tests showed mutagenic effects

**Carcinogenicity**
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Potassium dichromate)
NTP: Known to be human carcinogen (Potassium dichromate)
OSHA: OSHA specifically regulated carcinogen (Potassium dichromate)

**Reproductive toxicity**
Presumed human reproductive toxicant

No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
Inhalation - Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
No data available

**Additional Information**
RTECS: HX7680000

Ulceration, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish

LC50 - Lepomis macrochirus - 0.131 mg/l - 96.0 h
mortality NOEC - Pimephales promelas (fathead minnow) - 6 mg/l - 7.0 d
Toxicity to daphnia and other aquatic invertebrates

mortality NOEC - Daphnia (water flea) - 0.016 - 0.064 mg/l - 7 d

EC50 - Daphnia magna (Water flea) - 0.035 mg/l - 48 h

Toxicity to algae

EC50 - Pseudokirchneriella subcapitata - 0.31 mg/l - 72 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation

Oncorhynchus mykiss (rainbow trout) - 180 d
- 200 µg/l

Bioconcentration factor (BCF): 17.4

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 DOT (US)

UN number: 3086  Class: 6.1 (5.1)  Packing group: I

Proper shipping name: Toxic solids, oxidizing, n.o.s. (Potassium dichromate)
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

14.2 IMDG

UN number: 3086  Class: 6.1 (5.1)  Packing group: I

Proper shipping name: TOXIC SOLID, OXIDIZING, N.O.S. (Potassium dichromate)

Marine pollutant: yes

14.3 IATA

UN number: 3086  Class: 6.1 (5.1)  Packing group: I

Proper shipping name: Toxic solid, oxidizing, n.o.s. (Potassium dichromate)

IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

15.1 SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

15.2 SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>
### SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>1993-04-24</td>
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</table>

#### Pennsylvania Right To Know Components

<table>
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<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

#### New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

#### California Prop. 65 Components

**WARNING! This product contains a chemical known to the State of California to cause cancer.**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>2014-06-06</td>
</tr>
</tbody>
</table>

**WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>2014-06-06</td>
</tr>
</tbody>
</table>

### 16. OTHER INFORMATION

**Full text of H-Statements referred to under sections 2 and 3.**

<table>
<thead>
<tr>
<th>Acute Tox.</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute</td>
<td>Acute aquatic toxicity</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>Chronic aquatic toxicity</td>
</tr>
<tr>
<td>Carc.</td>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>Eye Dam.</td>
<td>Serious eye damage</td>
</tr>
<tr>
<td>H272</td>
<td>May intensify fire; oxidiser.</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>H310</td>
<td>Fatal in contact with skin.</td>
</tr>
<tr>
<td>H310 + H330</td>
<td>Fatal in contact with skin or if inhaled</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H330</td>
<td>Fatal if inhaled.</td>
</tr>
<tr>
<td>H334</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>H340</td>
<td>May cause genetic defects.</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer.</td>
</tr>
<tr>
<td>H360</td>
<td>May damage fertility or the unborn child.</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure if inhaled.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
</tbody>
</table>

#### HMIS Rating

<table>
<thead>
<tr>
<th>Health hazard:</th>
<th>4</th>
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<tbody>
<tr>
<td>Chronic Health Hazard:</td>
<td>*</td>
</tr>
<tr>
<td>Flammability:</td>
<td>0</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

#### NFPA Rating

<table>
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<th>Health hazard:</th>
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<td>Fire Hazard:</td>
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<td>Reactivity Hazard:</td>
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<td>Special hazard.I:</td>
<td>OX</td>
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Further information
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