1 Identification

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product identifier</td>
<td></td>
</tr>
<tr>
<td>Trade name: Potassium Dichromate Standard - 50 OD</td>
<td></td>
</tr>
<tr>
<td>Part number:</td>
<td>BX07-0080</td>
</tr>
<tr>
<td>Application of the substance / the mixture</td>
<td>Laboratory chemicals</td>
</tr>
<tr>
<td>Details of the supplier of the safety data sheet</td>
<td></td>
</tr>
<tr>
<td>Manufacturer/Supplier</td>
<td>ULTRA Scientific, Inc.</td>
</tr>
<tr>
<td>Address</td>
<td>250 Smith Street</td>
</tr>
<tr>
<td>City, State Code</td>
<td>North Kingstown, RI 02852</td>
</tr>
<tr>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Information department</td>
<td>Telephone: (401) 294-9400</td>
</tr>
<tr>
<td></td>
<td>Fax: (401) 295-2300</td>
</tr>
<tr>
<td></td>
<td>E-mail: <a href="mailto:regulatory@ultrasci.com">regulatory@ultrasci.com</a></td>
</tr>
<tr>
<td>Emergency telephone number</td>
<td>US: +1-800-424-9300</td>
</tr>
<tr>
<td></td>
<td>Outside US: +1-703-527-3887</td>
</tr>
</tbody>
</table>

2 Hazard(s) identification

<table>
<thead>
<tr>
<th>Classification of the substance or mixture</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS08 Health hazard</td>
<td></td>
</tr>
<tr>
<td>Resp. Sens. 1 H334</td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>Muta. 1B H340</td>
<td>May cause genetic defects.</td>
</tr>
<tr>
<td>Carc. 1B H350</td>
<td>May cause cancer.</td>
</tr>
<tr>
<td>Repr. 1A H360</td>
<td>May damage fertility or the unborn child.</td>
</tr>
<tr>
<td>Acute Tox. 4 H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td>Skin Sens. 1 H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
</tbody>
</table>

| Label elements                                                      | The product is classified and labeled according to the Globally Harmonized System (GHS).                                             |
|                                                                     |                                                                                                                                      |
| Hazard pictograms                                                  | GHS07 GHS08                                                                                                                           |

| Signal word                                                        | Danger                                                                                                                               |
|                                                                     |                                                                                                                                      |
| Hazard-determining components of labeling:                         | potassium dichromate                                                                                                                 |
| Hazard statements                                                  | Harmful if inhaled.                                                                                                                   |
|                                                                     | May cause allergy or asthma symptoms or breathing difficulties if inhaled.                                                          |
Trade name: Potassium Dichromate Standard - 50 OD

May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.

- **Precautionary statements**
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Avoid breathing dust/fume/gas/mist/vapors/spray
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing must not be allowed out of the workplace.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - In case of inadequate ventilation] wear respiratory protection.
  - If on skin: Wash with plenty of water.
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - IF exposed or concerned: Get medical advice/attention.
  - Call a poison center/doctor if you feel unwell.
  - Specific treatment (see on this label).
  - If skin irritation or rash occurs: Get medical advice/attention.
  - If experiencing respiratory symptoms: Call a poison center/doctor.
  - Wash contaminated clothing before reuse.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 0
    - Fire = 0
    - Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**
  - HEALTH
    - Health = *1
  - FIRE
    - Fire = 0
  - REACTIVITY
    - Reactivity = 0

- **Other hazards**
  - Results of PBT and vPvB assessment
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**
  - 7778-50-9 potassium dichromate 0.5025%
4 First-aid measures

· Description of first aid measures
· General information: Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· After inhalation: Supply fresh air and to be sure call for a doctor. In case of unconsciousness place patient stably in side position for transportation.
· After skin contact: Immediately wash with water and soap and rinse thoroughly.
· After eye contact: Rinse opened eye for several minutes under running water.
· After swallowing: If symptoms persist consult doctor.
· Information for doctor: No further relevant information available.
· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
· Suitable extinguishing agents: Use fire fighting measures that suit the environment.
· Special hazards arising from the substance or mixture: No further relevant information available.
· Advice for firefighters
· Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures: Not required.
· Environmental precautions: Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.
· Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· Protective Action Criteria for Chemicals

PAC-1:
- 7778-50-9 potassium dichromate 0.42 mg/m³
- 7664-93-9 sulphuric acid 0.20 mg/m³

PAC-2:
- 7778-50-9 potassium dichromate 8.8 mg/m³
- 7664-93-9 sulphuric acid 8.7 mg/m³

PAC-3:
- 7778-50-9 potassium dichromate 44 mg/m³
- 7664-93-9 sulphuric acid 160 mg/m³
7 Handling and storage

- Handling:
  - Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.
- Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters

Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Long-term value</th>
<th>Ceiling limit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778-50-9 potassium dichromate</td>
<td>0.005* mg/m³</td>
<td>0.1** mg/m³</td>
</tr>
<tr>
<td></td>
<td>*as Cr(VI) **as CrO3; see 29 CFR 1910.1026</td>
<td></td>
</tr>
<tr>
<td>REL Long-term value</td>
<td>0.0002 mg/m³</td>
<td>as Cr; See Pocket Guide Apps. A and C</td>
</tr>
<tr>
<td>TLV Short-term value</td>
<td>0.0005 mg/m³</td>
<td>as Cr; inhalable, Skin; BEI, DSEN, RSEN</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 0.0002 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parameter: Total chromium (fume)</td>
<td></td>
</tr>
</tbody>
</table>

Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>7778-50-9 potassium dichromate</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI 25 µg/L Medium: urine</td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
</tr>
<tr>
<td>Parameter: Total chromium (fume)</td>
</tr>
</tbody>
</table>

| 10 µg/L Medium: urine |
| Time: increase during shift |
| Parameter: Total chromium (fume) |

- Additional information: The lists that were valid during the creation were used as basis.
- Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
  - Breathing equipment:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
9 Physical and chemical properties

- Information on basic physical and chemical properties
- General Information
- Appearance:
  - Form: Fluid
  - Color: Colorless
  - Odor: Odorless
  - Odor threshold: Not determined.
- pH-value: Not determined.
- Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: 100 °C (212 °F)
- Flash point: Not applicable.
- Flammability (solid, gaseous): Not applicable.
- Decomposition temperature: Not determined.
- Auto igniting: Product is not selfigniting.
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapor pressure: Not determined.
- Density at 20 °C (68 °F): 1.00863 g/cm³ (8.41702 lbs/gal)
  - Relative density: Not determined.
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
47.0

- Solubility in / Miscibility with
  Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  Dynamic at 20 °C (68 °F): 0.952 mPas
  Kinematic: Not determined.
- Solvent content:
  Water: 99.4 %
  VOC content: 0.00 %
  0.0 g/l / 0.00 lb/gl
- Solids content: 0.5 %
- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:

<table>
<thead>
<tr>
<th>LD/LC50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE (Acute Toxicity Estimate)</td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Inhalative</td>
</tr>
<tr>
<td>7778-50-9 potassium dichromate</td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dermal</td>
</tr>
<tr>
<td>Inhalative</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization:
  Sensitization possible through inhalation.
  Sensitization possible through skin contact.
- Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Harmful
  Irritant
**Trade name: Potassium Dichromate Standard - 50 OD**

The product can cause inheritable damage.

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    - 7778-50-9 potassium dichromate 1
    - 7664-93-9 sulphuric acid 1
  - **NTP (National Toxicology Program)**
    - 7778-50-9 potassium dichromate K
    - 7664-93-9 sulphuric acid K
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    - None of the ingredients is listed.

**12 Ecological information**

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
    - **Bioaccumulative potential** No further relevant information available.
    - **Mobility in soil** No further relevant information available.
  - **Additional ecological information:**
    - **General notes:**
      Water hazard class 3 (Self-assessment): extremely hazardous for water
      Do not allow product to reach ground water, water course or sewage system, even in small quantities.
      Danger to drinking water if even extremely small quantities leak into the ground.
    - **Results of PBT and vPvB assessment**
      - **PBT:** Not applicable.
      - **vPvB:** Not applicable.
      - **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
  - **Recommendation:**
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  - **Uncleaned packagings:**
    - **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **UN-Number**
  - DOT, IMDG, IATA: not regulated

- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

<table>
<thead>
<tr>
<th>Section 355 (extremely hazardous substances):</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-93-9 sulphuric acid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 313 (Specific toxic chemical listings):</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778-50-9 potassium dichromate</td>
</tr>
<tr>
<td>7664-93-9 sulphuric acid</td>
</tr>
</tbody>
</table>

- TSCA (Toxic Substances Control Act):
  All ingredients are listed.

- TSCA new (21st Century Act) (Substances not listed)
  7778-50-9 potassium dichromate

- Proposition 65

- Chemicals known to cause cancer:
  7778-50-9 potassium dichromate

- Chemicals known to cause reproductive toxicity for females:
  7778-50-9 potassium dichromate

- Chemicals known to cause reproductive toxicity for males:
  7778-50-9 potassium dichromate

- Chemicals known to cause developmental toxicity:
  7778-50-9 potassium dichromate

- Carcinogenic categories

<table>
<thead>
<tr>
<th>EPA (Environmental Protection Agency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778-50-9 potassium dichromate</td>
</tr>
<tr>
<td>A(inh), D(oral), K/L(inh), CBD(oral)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TLV (Threshold Limit Value established by ACGIH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778-50-9 potassium dichromate</td>
</tr>
<tr>
<td>7664-93-9 sulphuric acid</td>
</tr>
<tr>
<td>A1</td>
</tr>
</tbody>
</table>

- NIOSH-Ca (National Institute for Occupational Safety and Health)
  7778-50-9 potassium dichromate
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

  GHS07  GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  potassium dichromate

- **Hazard statements**
  Harmful if inhaled.
  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.

- **Precautionary statements**
  Obtain special instructions before use.
  Do not handle until all safety precautions have been read and understood.
  Avoid breathing dust/fume/gas/mist/vapors/spray
  Use only outdoors or in a well-ventilated area.
  Contaminated work clothing must not be allowed out of the workplace.
  Wear protective gloves/protective clothing/eye protection/face protection.
  [In case of inadequate ventilation] wear respiratory protection.
  If on skin: Wash with plenty of water.
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  IF exposed or concerned: Get medical advice/attention.
  Call a poison center/doctor if you feel unwell.
  Specific treatment (see on this label).
  If skin irritation or rash occurs: Get medical advice/attention.
  If experiencing respiratory symptoms: Call a poison center/doctor.
  Wash contaminated clothing before reuse.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials:**
  Carcinogenic hazardous material group III (dangerous).

- **Information about limitation of use:**
  Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
  Exceptions can be made by the authorities in certain cases.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Date of preparation / last revision** 06/20/2018 / -

- **Abbreviations and acronyms:**
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Trade name: Potassium Dichromate Standard - 50 OD

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1B: Carcinogenicity – Category 1B
Repr. 1A: Reproductive toxicity – Category 1A