1 Identification

· Product identifier
  · Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)
  · Article number: 100012-7

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: High-Purity Standards
    P.O. Box 41727
    Charleston, SC 29423
    Telephone: (843) 767-7900
    FAX: (843) 767-7906

· Information department: Product safety department
  · Emergency telephone number:
    INFOTRAC
    Emergency telephone numbers 1-800-535-5053
    Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS08 Health hazard

  Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  Muta. 1B H340 May cause genetic defects.
  Carc. 1B H350 May cause cancer.
  Repr. 1A H360 May damage fertility or the unborn child.

  GHS07 Skin Sens. 1 H317 May cause an allergic skin reaction.

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

  GHS08

· Signal word Danger

· Hazard-determining components of labeling:
  potassium dichromate

· Hazard statements
  H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  H317 May cause an allergic skin reaction.
  H340 May cause genetic defects.
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

H350 May cause cancer.
H360 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
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: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If exposed or concerned: Get medical advice/attention.
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 = *0

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 0.1%

Chemical identification of the substance/preparation

7732-18-5 water, distilled, conductivity or of similar purity 99.9%
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

4 First-aid measures
- Description of first aid measures
- 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:
  - Most important symptoms and effects, both acute and delayed: 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: No special measures required.

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
  - PAC-2:
    - 7778-50-9 potassium dichromate 8.8 mg/m³
  - PAC-3:
    - 7778-50-9 potassium dichromate 44 mg/m³
7 Handling and storage

· Handling:

· Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Open and handle receptacle with care.
  Prevent formation of aerosols.

· Information about protection against explosions and fires: Keep respiratory protective device available.

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

· Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>7778-50-9 potassium dichromate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEI</strong> 25 µg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
</tr>
<tr>
<td>Parameter: Total chromium (fume)</td>
</tr>
<tr>
<td>10 µg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
</tr>
<tr>
<td>Time: increase during shift</td>
</tr>
<tr>
<td>Parameter: Total chromium (fume)</td>
</tr>
</tbody>
</table>

· 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.
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

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.

- **Protection of hands:**
  
  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  
  **Material of gloves**
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  **Penetration time of glove material**
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

  **Tightly sealed goggles**

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### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - Form: Fluid
      - Color: Colorless
    - Odor: Characteristic
    - 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.
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)
- Density at 20 °C (68 °F): 1.00168 g/cm³ (8.35902 lbs/gal)
- Bulk density: 1,002 kg/m³
- Relative density: Not determined.
- Vapor density: Not determined.
- Evaporation rate: Not determined.
- Solubility in / Miscibility with Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content:
  - Water: 99.9 %
  - VOC content: 0.00 %
    0.0 g/l / 0.00 lb/gal
- Solids content: 0.1 %
- 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:
- LD/LC50 values that are relevant for classification:
  - Oral LD50 190 mg/kg (mouse)
- Primary irritant effect:
  - on the skin: No irritant effect.
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

- **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
- **Carcinogenic categories**
  - IARC (International Agency for Research on Cancer)
    - 7778-50-9 potassium dichromate
  - NTP (National Toxicology Program)
    - 7778-50-9 potassium dichromate
  - 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 | not regulated |
| · DOT, ADR, IMDG, IATA | not regulated |
| · UN proper shipping name | not regulated |
| · DOT, ADR, IMDG, IATA | not regulated |
| · Transport hazard class(es) | not regulated |
| · DOT, ADR, IMDG, IATA | not regulated |
| · Class | not regulated |
| · Packing group | not regulated |
| · DOT, ADR, IMDG, IATA | not regulated |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | not regulated |

15 Regulatory information

| · Safety, health and environmental regulations/legislation specific for the substance or mixture | Sara |
| · Sara | |
| · Section 355 (extremely hazardous substances): | None of the ingredients is listed. |
| · Section 313 (Specific toxic chemical listings): | 7778-50-9 potassium dichromate |
| · 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 |
Trade name: Potassium Dichromate as Cr+6 (1000µg/mL in H2O)

· Carcinogenic categories
  - EPA (Environmental Protection Agency) (Substances not listed)
    7732-18-5 water, distilled, conductivity or of similar purity
  - TLV (Threshold Limit Value established by ACGIH)
    7778-50-9 potassium dichromate
  - 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
  GHS08

· Signal word
  Danger

· Hazard-determining components of labeling:
  potassium dichromate

· Hazard statements
  H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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  [In case of inadequate ventilation] wear respiratory protection.
  If on skin: Wash with plenty of water.
  If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
  IF exposed or concerned: Get medical advice/attention.
  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.

(Contd. of page 8)
### 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.

- **Department issuing SDS:** Environment protection department.
- **Contact:**
  - High-Purity Standards
  - Tel: 843-767-7900
  - Fax: 843-767-7906
- **Date of preparation / last revision:** 11/13/2018 / -
- **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)
  - 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
  - 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