1 Identification

- **Product name**
  - **Trade name:** Chromium(II) chloride, anhydrous (99.9%-Cr)
  - **Item number:** 93-2405
  - **CAS Number:** 10049-05-5
  - **EC number:** 233-163-3

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Strem Chemicals, Inc.
    7 Mulliken Way
    NEWBURYPORT, MA 01950
    USA
    info@strem.com

- **Information department:** Technical Department
- **Emergency telephone number:**
  - **EMERGENCY:** CHEMTREC: + 1 (800) 424-9300
  - **During normal opening times:** +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - The substance is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
  - **GHS label elements** not applicable
  - **Hazard pictograms** not applicable
  - **Signal word** not applicable
  - **Hazard statements** not applicable

- **Precautionary statements**
  - **P231** Handle under inert gas.
  - **P222** Do not allow contact with air.
  - **P305+P351+P338** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - **P403+P233** Store in a well-ventilated place. Keep container tightly closed.
  - **P422** Store contents under inert gas.
  - **P501** Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = 2
    - Fire = 0
    - Reactivity = 0

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

(Contd. on page 2)
3 Composition/information on ingredients

- Chemical characterization: Substances
  - CAS No. Description
    10049-05-5 chromium dichloride
  - Identification number(s)
  - EC number: 233-163-3

4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately rinse with water.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - 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:
    CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - 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: No special measures required.
- Methods and material for containment and cleaning up:
  Dispose contaminated material as waste according to item 13.
- 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.

7 Handling and storage

- Handling: Handle under inert gas.
- Precautions for safe handling:
  No special measures required.
  Open and handle receptacle with care.
Trade name: Chromium(II) chloride, anhydrous (99.9%-Cr)

- Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
  - Storage: Store contents under inert gas.
  - 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: Store in cool, dry conditions in well sealed receptacles.
- 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:
    | Component | Limit Value |
    |-----------|-------------|
    | 10049-05-5 chromium dichloride | 0.5 mg/m³ as Cr |
    | REL Long-term value: 0.5 mg/m³ as Cr; See Pocket Guide App. C |

- Additional information: The lists that were valid during the creation were used as basis.
- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures:
      The usual precautionary measures for handling chemicals should be followed.
    - Breathing equipment: Not required.
  - 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.
    - 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: Safety glasses

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      | Form: | Powder |
      | Color: | Whitish |

(Contd. of page 2)
**Trade name:** Chromium(II) chloride, anhydrous (99.9%-Cr)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>824 °C (1515 °F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>no data °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Product is not flammable</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>no data hPa</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F)</td>
<td>2.878 g/cm³ (24.017 lbs/gal)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water</td>
<td>Insoluble.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solvent content</td>
<td></td>
</tr>
<tr>
<td>Organic solvents</td>
<td>0.0 %</td>
</tr>
<tr>
<td>VOC content</td>
<td>0.0 g/l / 0.00 lb/gl</td>
</tr>
<tr>
<td>Solids content</td>
<td>100.0 %</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

### 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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50/LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>10049-05-5 chromium dichloride</td>
<td>1870 mg/kg (rat)</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.

- Sensitization: No sensitizing effects known.

- Additional toxicological information:
  When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
  The substance is not subject to classification.

- Carcinogenic categories

  - IARC (International Agency for Research on Cancer)
    Substance is not listed.

  - NTP (National Toxicology Program)
    Substance is not listed.

  - OSHA-Ca (Occupational Safety & Health Administration)
    Substance is not 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: Not known to be hazardous to water.
  - 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: Disposal must be made according to official regulations.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
### 14 Transport information

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

- **UN proper shipping name**
  - DOT, ADN, IMDG, IATA: not regulated

- **Transport hazard class(es)**
  - DOT, ADN, IMDG, IATA: not regulated
  - Class: not regulated

- **Packing group**
  - DOT, IMDG, IATA: not regulated

- **Environmental hazards:**
  - Marine pollutant: No

- **Special precautions for user**
  - 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**
    - **Section 355 (extremely hazardous substances):**
      - Substance is not listed.
    - **Section 313 (Specific toxic chemical listings):**
      - Substance is listed.
    - **TSCA (Toxic Substances Control Act):**
      - Substance is listed.
    - **Proposition 65**
      - **Chemicals known to cause cancer:**
        - Substance is not listed.
      - **Chemicals known to cause reproductive toxicity for females:**
        - Substance is not listed.
      - **Chemicals known to cause reproductive toxicity for males:**
        - Substance is not listed.
      - **Chemicals known to cause developmental toxicity:**
        - Substance is not listed.
    - **Carcinogenic categories**
      - **EPA (Environmental Protection Agency)**
        - Substance is not listed.
      - **TLV (Threshold Limit Value established by ACGIH)**
        - Substance is not listed.
Safety Data Sheet
according to OSHA HCS

Trade name: Chromium(II) chloride, anhydrous (99.9%-Cr)

- NIOSH-Ca (National Institute for Occupational Safety and Health)
  Substance is not listed.

- GHS label elements not applicable
- Hazard pictograms not applicable
- Signal word not applicable
- Hazard statements not applicable
- Precautionary statements
  P231 Handle under inert gas.
  P222 Do not allow contact with air.
  P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  P422 Store contents under inert gas.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- 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.

- Department issuing SDS: Technical Department.
- Contact: Technical Director
- Date of preparation / last revision 07/31/2016 / -
- 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
  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