| MICALS, IN | Safety data sheet<br>according to 1907/2006/EC, Article 31   | Page 1/6                      |
|------------|--|-------------------------------|
| _          | Printing date 21.07.2021   | Revision: 21.07.2021          |
|            | <b>SECTION 1: Identification of the substance/mixture and of the com</b>   | pany/undertaking              |
|            | · 1.1 Product identifier   |                               |
|            | · Trade name: Holmium chips (99% REO)  |                               |
|            | <ul> <li>Item number: 93-6731</li> <li>CAS Number:<br/>7440-60-0</li> <li>EC number:<br/>231-169-0</li> <li>I.2 Relevant identified uses of the substance or mixture and uses advised against<br/>No further relevant information available.</li> </ul>  |                               |
|            | <ul> <li>1.3 Details of the supplier of the safety data sheet</li> <li>Manufacturer/Supplier:<br/>Strem Chemicals, Inc.</li> <li>7 Mulliken Way</li> <li>NEWBURYPORT, MA 01950</li> <li>USA</li> <li>info@strem.com</li> </ul>   |                               |
|            | <ul> <li>Further information obtainable from: Technical Department</li> <li>1.4 Emergency telephone number:<br/>EMERGENCY: CHEMTREC: + 1 (800) 424-9300<br/>During normal opening times: +1 (978) 499-1600</li> </ul>  |                               |
|            |  |                               |
|            | SECTION 2: Hazards identification  |                               |
|            | <ul> <li>• 2.1 Classification of the substance or mixture</li> <li>• Classification according to Regulation (EC) No 1272/2008</li> <li>The substance is not classified according to the CLP regulation.</li> </ul>   |                               |
| _          | <ul> <li>2.2 Label elements</li> <li>Labelling according to Regulation (EC) No 1272/2008 Void</li> <li>Hazard pictograms Void</li> <li>Signal word Void</li> <li>Hazard statements Void</li> <li>Precautionary statements</li> <li>P231 Handle under inert gas.</li> <li>P222 Do not allow contact with air.</li> <li>P262 Do not get in eyes, on skin, or on clothing.</li> </ul> |                               |
|            | P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minut<br>present and easy to do. Continue rinsing.P403+P233Store in a well-ventilated place. Keep container tightly closed.   |                               |
|            | P501 Dispose of contents/container in accordance with local/regregulations.  | gional/national/international |
|            | 1.2  O(4) and $b = -a = 4a$  |                               |

· 2.3 Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

# SECTION 3: Composition/information on ingredients

- · 3.1 Chemical characterisation: Substances
- CAS No. Description 7440-60-0 none

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• Identification number(s)

• EC number: 231-169-0

#### **SECTION 4: First aid measures**

• 4.1 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.
- · 4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
- · 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

### **SECTION 5: Firefighting measures**

· 5.1 Extinguishing media

- Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
- · 5.2 Special hazards arising from the substance or mixture No further relevant information available.
- · 5.3 Advice for firefighters
- · Protective equipment: No special measures required.

#### **SECTION 6: Accidental release measures**

- · 6.1 Personal precautions, protective equipment and emergency procedures Not required.
- · 6.2 Environmental precautions: No special measures required.
- · 6.3 Methods and material for containment and cleaning up:
- Dispose contaminated material as waste according to item 13.
- · 6.4 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.

### **SECTION 7: Handling and storage**

- · 7.1 Precautions for safe handling No special measures required.
- · Handling: Handle under inert gas.
- · Information about fire and explosion protection: No special measures required.
- · 7.2 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.
- 7.3 Specific end use(s) No further relevant information available.

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| <ul> <li>Additional information about design of technical facilities: No further data: see item 7.</li> <li>S. Control parameters</li> <li>Ingretients with limit values that require monitoring at the workplace: Not required.</li> <li>Additional information: The lists valid during the making were used as basis.</li> <li>S. Exposure controls</li> <li>Personal protective equipment:         <ul> <li>General protective and hygienic measures:</li> <li>The total ary measures are to be adhered to when handling chemicals.</li> <li>Respiratory protection: Not required.</li> <li>Respiratory protection: Not required.</li> <li>Protection of hands:</li> </ul> </li> <li>Protection of hands:         <ul> <li>The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.</li> <li>Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ technical gloves</li> <li>Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation of Material of gloves</li> <li>The esact break through time has to be found out by the manufacturer of the protective gloves and has to observed.</li> <li>Selection: Safety glasses</li> <li>9.1 Information on basic physical and chemical properties</li> <li>General Information</li> <li>Appearance:</li></ul></li></ul>   | SECTION 8: Exposure contro  | ls/personal protection  |
|---|---|---|
| <ul> <li>Ingredients with limit values that require monitoring at the workplace: Not required.</li> <li>Additional information: The lists valid during the making were used as basis.</li> <li>6.32 Exposure controls</li> <li>Personal protective equipment:</li> <li>General protective equipments measures:</li> <li>The usual precautionary measures are to be adhered to when handling chemicals.</li> <li>Respiratory protection: Not required.</li> <li>Protection of hands:</li> <li>Protection of hands:</li> <li>Protective gloves</li> <li>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.</li> <li>Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation to the selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation observed.</li> <li>Peretection: Safety glasses</li> <li>9.1 Information on basic physical and chemical properties</li> <li>General Information</li> <li>Odour:</li> <li>Odouries:</li> <li>Odour threshold:</li> <li>Not determined.</li> <li>Pulvalue:</li> <li>Not determined.</li> <li>Product is not flammabile.</li> <li>Flamability (solid, gas):</li> <li>Product is not flammable.</li> <li>Explosion Inmits:</li> <li>Not determined.</li> </ul>   | · Additional information about design   | of technical facilities: No further data; see item 7.   |
| <ul> <li>Personal protective equipment:         <ul> <li>General protective and hygenic measures:             <ul></ul></li></ul></li></ul>   | · Ingredients with limit values that req  |   |
| 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/ to 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 a 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 observed.         • Eye protection: Safety glasses         • 9.1 Information on basic physical and chemical properties         • General Information         • Appearance:         Form:       Chips         Colour:       Odourless         • Odour threshold:       Not determined.         • pH-value:       Not applicable.         • Flash point:       I Art4 °C         Initial boiling point and boiling range: 2.695 °C       •         • Flash point:       Not applicable.         • Flash point:       Not determined.         • Jgnition temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Auto-ignition temperature: </th <th><ul> <li>Personal protective equipment:</li> <li>General protective and hygienic mea<br/>The usual precautionary measures an</li> <li>Respiratory protection: Not required</li> </ul></th> <th>e to be adhered to when handling chemicals.</th>  | <ul> <li>Personal protective equipment:</li> <li>General protective and hygienic mea<br/>The usual precautionary measures an</li> <li>Respiratory protection: Not required</li> </ul>   | e to be adhered to when handling chemicals.   |
| Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ to 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 a 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 observed.         • Eye protection: Safety glasses         • 9.1 Information on basic physical and chemical properties         • General Information         • Appearance:         Form:       Chips         Colour:       Silver grey         • Odour threshold:       Not determined.         • pH-value:       Not applicable.         • Flash point:       I.474 °C         Initial boiling point and boiling range: 2.695 °C         • Flash point:       Not determined.         • Jupiction temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Lignition temperature:       Not determined.         • Lignition temperature:       Not determined.         • Lignition temperatur  | Protective gloves   |   |
| 9.1 Information on basic physical and chemical properties         General Information         Appearance:         Form:       Chips         Colour:       Silver grey         Odour:       Odourless         Odour threshold:       Not determined.         • pH-value:       Not applicable.         • Change in condition       1.474 °C         Melting point/freezing point:       1.474 °C         Initial boiling point and boiling range:       2.695 °C         • Flash point:       Not applicable.         • Flash point:       Not determined.         • Supposition temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Explosion limits:       Product does not present an explosion hazard.         • Explosion limits:       Not determined.         µper:       Not determined.  | chemical mixture.<br>Selection of the glove material on con<br>• Material of gloves<br>The selection of the suitable gloves d<br>varies from manufacturer to manufact<br>• Penetration time of glove material<br>The exact break through time has to<br>observed. | nsideration of the penetration times, rates of diffusion and the degradation<br>oes not only depend on the material, but also on further marks of quality and<br>turer. |
| General Information• Appearance:• Appearance:• Form:Chips• Colour:Silver grey• Odour threshold:Not determined.• pH-value:Not applicable.• Change in condition1.474 °CMelting point/freezing point:1.474 °CInitial boiling point and boiling range:2.695 °C• Flash point:Not applicable.• Flammability (solid, gas):Product is not flammable.• Ignition temperature:Not determined.• Decomposition temperature:Not determined.• Auto-ignition temperature:Not determined.• Explosive properties:Product does not present an explosion hazard.• Explosion limits:Not determined.Lower:Not determined.Vipper:Not determined.   |   | nd chemical properties  |
| Form:ChipsColour:Silver greyOdoure:OdourlessOdour threshold:Not determined.• pH-value:Not applicable.• Change in condition<br>Melting point/freezing point:1.474 °C<br>1.474 °C<br>1.11111111111111111111111111111111111  | · General Information   |   |
| Colour:Silver greyOdourOdourlessOdour threshold:Not determined.• pH-value:Not applicable.• Change in condition<br>Melting point/freezing point:1.474 °C<br>1.474 °C<br>1.1474 °C<br>  |   | China   |
| · Odour:Odourless· Odour threshold:Not determined.· pH-value:Not applicable.· Change in condition<br>Melting point/freezing point:1.474 °C<br>1.474 °C<br>1.474 °C· Initial boiling point and boiling range:2.695 °C· Flash point:Not applicable.· Flash point:Not applicable.· Flammability (solid, gas):Product is not flammable.· Ignition temperature:Not determined.· Auto-ignition temperature:Not determined.· Explosive properties:Product does not present an explosion hazard.· Explosion limits:<br>Lower:<br>Upper:Not determined.Not determined.Not determined.  |   |   |
| · pH-value:Not applicable.· Change in condition<br>Melting point/freezing point:1.474 °C<br>1.474 °C<br>1.474 °C<br>1.474 Product is not flammable.· Flash point:Not applicable.· Flash point:Product is not flammable.· Ignition temperature:Not determined.· Auto-ignition temperature:Not determined.· Explosive properties:Product does not present an explosion hazard.· Explosion limits:<br>Lower:<br>Upper:Not determined.Not determined.Not determined.· Not determined.Not determined.  |   | · ·   |
| <ul> <li>Change in condition<br/>Melting point/freezing point: 1.474 °C<br/>Initial boiling point and boiling range: 2.695 °C</li> <li>Flash point: Not applicable.</li> <li>Flammability (solid, gas): Product is not flammable.</li> <li>Ignition temperature: Not determined.</li> <li>Auto-ignition temperature: Not determined.</li> <li>Auto-ignition temperature: Product does not present an explosion hazard.</li> <li>Explosion limits:<br/>Lower: Not determined.</li> <li>Not determined.</li> <li>Not determined.</li> </ul>   | · Odour threshold:  | Not determined.   |
| Melting point/freezing point:1.474 °C<br>Initial boiling point and boiling range:Initial boiling point and boiling range:2.695 °CFlash point:Not applicable.Flammability (solid, gas):Product is not flammable.Ignition temperature:Not determined.Decomposition temperature:Not determined.Auto-ignition temperature:Not determined.Explosive properties:Product does not present an explosion hazard.Explosion limits:<br>Lower:<br>Upper:Not determined.Not determined.Not determined.   | · pH-value:   | Not applicable.   |
| • Flammability (solid, gas):       Product is not flammable.         • Ignition temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Explosive properties:       Product does not present an explosion hazard.         • Explosion limits:       Not determined.         Lower:       Not determined.         Vpper:       Not determined.   | Melting point/freezing point:   |   |
| • Ignition temperature:       Not determined.         Decomposition temperature:       Not determined.         • Auto-ignition temperature:       Not determined.         • Explosive properties:       Product does not present an explosion hazard.         • Explosion limits:       Not determined.         Lower:       Not determined.         Upper:       Not determined.   | · Flash point:  | Not applicable.   |
| Decomposition temperature:       Not determined.         Auto-ignition temperature:       Not determined.         Explosive properties:       Product does not present an explosion hazard.         Explosion limits:       Not determined.         Lower:       Not determined.         Upper:       Not determined.   | · Flammability (solid, gas):  | Product is not flammable.   |
| • Auto-ignition temperature:       Not determined.         • Explosive properties:       Product does not present an explosion hazard.         • Explosion limits:       Image: Compare the explosion hazard.         Lower:       Not determined.         Upper:       Not determined.   | · Ignition temperature:   |   |
| • Explosive properties:       Product does not present an explosion hazard.         • Explosion limits:       Image: Compare the second s | Decomposition temperature:  | Not determined.   |
| • Explosion limits:         Lower:       Not determined.         Upper:       Not determined.   | • Auto-ignition temperature:  | Not determined.   |
| Lower:Not determined.Upper:Not determined.  | · Explosive properties:   | Product does not present an explosion hazard.   |
| Upper: Not determined.  |   |   |
|   |   |   |
|   | Opper.  | (Contd. on page 4   |



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|---|--|-----------|
| · Vapour pressure:                        | Not applicable.                            |           |
| · Density at 20 °C:                       | 8.795 g/cm <sup>3</sup>                    |           |
| · Relative density                        | Not determined.                            |           |
| · Vapour density                          | Not applicable.                            |           |
| • Evaporation rate                        | Not applicable.                            |           |
| · Solubility in / Miscibility with        |  |           |
| water:                                    | Insoluble.                                 |           |
| · Partition coefficient: n-octanol/water: | Not determined.                            |           |
| · Viscosity:                              |  |           |
| Dynamic:                                  | Not applicable.                            |           |
| Kinematic:                                | Not applicable.                            |           |
| · Solvent content:                        |  |           |
| Organic solvents:                         | 0.0 %                                      |           |
| VÕC (EC)                                  | 0.00 %                                     |           |
| Solids content:                           | 100.0 %                                    |           |
| • 9.2 Other information                   | No further relevant information available. |           |

### **SECTION 10: Stability and reactivity**

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

#### **SECTION 11: Toxicological information**

- · 11.1 Information on toxicological effects
- Acute toxicity Based on available data, the classification criteria are not met.
- · Primary irritant effect:
- · Skin corrosion/irritation Based on available data, the classification criteria are not met.
- Serious eye damage/irritation Based on available data, the classification criteria are not met.
- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- · CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
- · Germ cell mutagenicity Based on available data, the classification criteria are not met.
- · Carcinogenicity Based on available data, the classification criteria are not met.
- · Reproductive toxicity Based on available data, the classification criteria are not met.
- · STOT-single exposure Based on available data, the classification criteria are not met.
- · STOT-repeated exposure Based on available data, the classification criteria are not met.
- $\cdot$  Aspiration hazard Based on available data, the classification criteria are not met.

#### **SECTION 12: Ecological information**

· 12.1 Toxicity

• Aquatic toxicity: No further relevant information available.

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- · 12.2 Persistence and degradability No further relevant information available.
- · 12.3 Bioaccumulative potential No further relevant information available.
- · 12.4 Mobility in soil No further relevant information available.
- · Additional ecological information:
- General notes: Not known to be hazardous to water.
- · 12.5 Results of PBT and vPvB assessment

· PBT: Not applicable.

- **vPvB:** Not applicable.
- · 12.6 Other adverse effects No further relevant information available.

# SECTION 13: Disposal considerations

- · 13.1 Waste treatment methods
- · Recommendation Disposal must be made according to official regulations.
- Uncleaned packaging:
- · Recommendation: Disposal must be made according to official regulations.

| SECTION 14: Transport information                                    | tion                         |  |
|--|------------------------------|--|
| · 14.1 UN-Number<br>· ADR, ADN, IMDG, IATA                           | not regulated                |  |
| · 14.2 UN proper shipping name<br>· ADR, ADN, IMDG, IATA             | not regulated                |  |
| · 14.3 Transport hazard class(es)                                    |                              |  |
| · ADR, ADN, IMDG, IATA<br>· Class                                    | not regulated                |  |
| · 14.4 Packing group<br>· ADR, IMDG, IATA                            | not regulated                |  |
| · 14.5 Environmental hazards:<br>· Marine pollutant:                 | No                           |  |
| · 14.6 Special precautions for user                                  | Not applicable.              |  |
| · 14.7 Transport in bulk according to Ann<br>Marpol and the IBC Code | nex II of<br>Not applicable. |  |
| · UN ''Model Regulation'':   | not regulated                |  |

#### **SECTION 15: Regulatory information**

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

· Directive 2012/18/EU

- · Named dangerous substances ANNEX I Substance is not listed.
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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#### **SECTION 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

· 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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative