SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Pyridinium chlorochromate
Cat No.: 183670000; 183670250; 183671000; 183675000
Synonyms PCC
CAS-No 26299-14-9
Molecular Formula C5 H6 Cl Cr N O3

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company
UK entity/business name Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

E-mail address begel.sdskdesk@thermofisher.com

1.4. Emergency telephone number

For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US:001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US:001-800-424-9300 / Europe:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards
Oxidizing solids Category 2 (H272)

Health hazards
Skin Sensitization Category 1 (H317)
SAFETY DATA SHEET

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Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word Danger

Hazard Statements
H272 - May intensify fire; oxidizer
H317 - May cause an allergic skin reaction
H410 - Very toxic to aquatic life with long lasting effects
H350i - May cause cancer by inhalation

Precautionary Statements
P280 - Wear eye protection/ face protection
P201 - Obtain special instructions before use
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P273 - Avoid release to the environment

Additional EU labelling
Restricted to professional users

2.3. Other hazards
No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>EC-No.</th>
<th>Weight %</th>
<th>CLP Classification - Regulation (EC) No 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromate(1-), chlorotrioxo-, (T-4)-, hydrogen, compound with pyridine(1:1)</td>
<td>26299-14-9</td>
<td>EEC No. 247-595-5</td>
<td>98</td>
<td>Ox. Sol. 2 (H272) Skin Sens. 1 (H317) Carc. 1A (H350i) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Ingestion: Do NOT induce vomiting. Get medical attention.

Inhalation: Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention. If not breathing, give artificial respiration.

Self-Protection of the First Aider: Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media: Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons: No information available.

5.2. Special hazards arising from the substance or mixture

Oxidizer: Contact with combustible/organic material may cause fire. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Chromium oxide, Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Keep combustibles (wood, paper, oil, etc) away from spilled material. Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not breathe (dust, vapor, mist, gas). Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)
Class 5.1B

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>The United Kingdom</th>
<th>European Union</th>
<th>Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromate(1-), chlorotrioxo-, (T-4)-, hydrogen, compound with pyridine(1:1)</td>
<td>STEL: 0.03 mg/m³ 15 min, STEL: 0.065 mg/m³ 15 min, TWA: 0.01 mg/m³ 8 hr, TWA: 0.025 mg/m³ 8 hr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Pyridinium chlorochromate

Carc. as Cr
Resp. Sens.

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust
MDHS12/2 Chromium and inorganic compounds of chromium in air Laboratory method using flame atomic absorption spectrometry

Derived No Effect Level (DNEL) No information available

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Acute effects (local)</th>
<th>Acute effects (systemic)</th>
<th>Chronic effects (local)</th>
<th>Chronic effects (systemic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

| Eye Protection          | Goggles (European standard - EN 166) |
| Hand Protection         | Protective gloves                   |

Glove material

<table>
<thead>
<tr>
<th>Material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrile rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural rubber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.
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Large scale/emergency use  Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type:  Particulates filter conforming to EN 143

Small scale/Laboratory use  Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:-  Particle filtering: EN149:2001

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls  Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Powder Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Orange</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>205 °C / 401 °F</td>
</tr>
<tr>
<td>Softening Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (liquid)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Solid</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>205 °C</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Solid</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density / Specific Gravity</td>
<td>No data available</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Particle characteristics</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Formula</td>
<td>C5 H6 Cl Cr N O3</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>215.56</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Oxidizer</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable - Solid</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity  Yes

10.2. Chemical stability  Oxidizer: Contact with combustible/organic material may cause fire, Moisture sensitive.
10.3. Possibility of hazardous reactions

**Hazardous Polymerization**
No information available.

**Hazardous Reactions**
No information available.

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products

**SECTION 11: TOXICOLOGICAL INFORMATION**

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Product Information**
No acute toxicity information is available for this product

(a) acute toxicity;
   - Oral: No data available
   - Dermal: No data available
   - Inhalation: No data available

(b) skin corrosion/irritation;
No data available

(c) serious eye damage/irritation;
No data available

(d) respiratory or skin sensitization;
   - Respiratory: No data available
   - Skin: Category 1
     - May cause sensitization by skin contact

(e) germ cell mutagenicity;
No data available

(f) carcinogenicity;
Category 1A
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;
   - Reproductive Effects: No data available
     - California Proposition 65. Reproductive toxicity.

(h) STOT-single exposure;
No data available

(i) STOT-repeated exposure;
No data available

Target Organs
No information available.
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(j) aspiration hazard; Not applicable
Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

12.2. Persistence and degradability
Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

Persistence May persist.
Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential
Product has a high potential to bioconcentrate

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
No data available for assessment.

12.6. Endocrine disrupting properties
Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects
Persistent Organic Pollutant
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste from Residues/Unused Products Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.
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European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1479
14.2. UN proper shipping name Oxidizing solid, n.o.s
14.3. Transport hazard class(es) 5.1
14.4. Packing group II

ADR

14.1. UN number UN1479
14.2. UN proper shipping name Oxidizing solid, n.o.s
14.3. Transport hazard class(es) 5.1
14.4. Packing group II

IATA

14.1. UN number UN1479
14.2. UN proper shipping name OXIDIZING SOLID, N.O.S.*
14.3. Transport hazard class(es) 5.1
14.4. Packing group II

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromate(1-), chlorotrioxo-, (T-4)-, hydrogen, compound with pyridine(1:1)</td>
<td>247-595-5</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>KE-2994-8</td>
<td></td>
</tr>
</tbody>
</table>

Not applicable

National Regulations

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UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment
Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H272 - May intensify fire; oxidizer
H317 - May cause an allergic skin reaction
H350i - May cause cancer by inhalation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

Creation Date 12-Feb-2015
Revision Date 11-Dec-2020
Revision Summary Update to CLP Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet