Product information ci 7 (corrosion inhibitor)

Application
ci 7 is a corrosion inhibitor used in semi-closed and closed systems with hard water. The application range is between 5 - 95°C.

Properties
ci 7 is a liquid inhibitor. It contains molybdates, organic inhibitors, hardening stabilizers and dispersing agents. ci 7 is used to prevent hardness deposits. And as a corrosion inhibitor, it prevent corrosion induced in non-ferrous metals. ci 7 does not contain chromate, nitrite or zinc.

Appearance: yellow liquid
Density: 1.1 kg/dm³
pH value: 10 - 11
MoO4 content: 2.7 %
Solubility: unlimited

The information given here is not a product specification; it is for information purposes only.

Dosing
The dosing rate depends on the system parameters and the operating conditions. The default application range is 6300 g/m³ in semi-closed and closed systems. Dosing devices must be made of stainless steel, PP, PE or PVC.
Molybdenum content Mo⁶⁺ is used to provide the necessary verification of the product. The Mo⁶⁺ content should be at least 100 mg/L. Test kit gwk Article No. 8110575.

Handling
Suitable personal protective measures are provided in the safety data sheet.

Important information
A Material Safety Data Sheet is included with each of our products. Material Safety Data Sheets contain important information on occupational health and safety, on the basis of which our customers can generate appropriate work instructions to protect their employees and customers and prevent harmful effects when handling the substances. Before using the gwk products in your system, make sure that the material safety data sheets have been read and understood by your supervisory staff and the appropriate employees.

Shelf life
3 months in opened container.
At least 1 year in unopened container.
Storage conditions: dry, cool, frost-free, dark

Packaging
ci 7 is available in 10 kg canisters, 25 kg canisters, and 200 kg barrels.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product code: cl 7

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

Use of the substance/mixture
Water treatment chemicals

Uses advised against
No information available.

1.3. Details of the supplier of the safety data sheet

Company name: Gesellschaft Wärme und Kältetechnik mbH
Street: Scherl 10
Place: D-58540 Meinerzhagen
Telephone: +49 2354 7060 - 0
Telefax: +49 2354 7060 - 156
e-mail (Contact person): info@gwk.com
Internet: www.gwk.com
Responsible Department: Wassertechnik

1.4. Emergency telephone number:
Giftnotruf Berlin +49 (0) 30 30686700

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Corrosive against metals: Met. Korr. 1
Skin corrosion / irritation: Skin irritation. 2
Serious eye damage / eye irritation: Eye irritation. 2

Hazard statements:
Can be corrosive to metals.
Causes skin irritation.
Causes serious eye irritation.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling
None.

Signal word: Attention
Pictograms:
Hazard statements

H290  May be corrosive to metals.
H315  Causes skin irritation.
H319  Causes serious eye irritation.

Precautionary statements

P280  Wear protective gloves / protective clothing / eye protection / face protection.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if possible. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice / attention.

Additional advice on labelling

The product is classified and labelled according to EC directives or corresponding national laws.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Formulation of preparations (mixtures)

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-14-7</td>
<td>benzotriazole</td>
<td>&lt; 2 %</td>
</tr>
<tr>
<td></td>
<td>202-394-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4, Eye Irrit. 2, Aquatic Chronic 3; H302 H319 H412</td>
<td></td>
</tr>
<tr>
<td>1310-73-2</td>
<td>sodium hydroxide</td>
<td>&lt; 2 %</td>
</tr>
<tr>
<td></td>
<td>215-185-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01-2119436643-00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin Corr. 1A; H314</td>
<td></td>
</tr>
<tr>
<td>2809-21-4</td>
<td>Organic phosphoric acid (HEDP)</td>
<td>&lt; 2 %</td>
</tr>
<tr>
<td></td>
<td>220-552-8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Met. Corr. 1, Acute Tox. 4, Eye Dam. 1; H290 H302 H318</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H and EUH statements: see section 16.

Further Information

No information available.

SECTION 4: First aid measures

4.1. Description of first aid measures
General information
Remove contaminated, saturated clothing immediately.

After inhalation
Move victim to fresh air. Instruct person to keep calm and warm.

After contact with skin
After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes
If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion
Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps.

4.2. Most important symptoms and effects, both acute and delayed
No information available.

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Water. Foam. ABC powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
High power water jet.

5.2. Special hazards arising from the substance or mixture
In the event of a fire: Nitrogen oxides (NOx). Hydrogen chloride (HCl). Carbon monoxide

5.3. Advice for firefighters
In case of fire: Wear self-contained breathing apparatus.

Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protection equipment.

6.2. Environmental precautions
Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections
Take up mechanically, placing in appropriate containers for disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
No special measures are necessary.

Advice on protection against fire and explosion
No special fire protection measures are necessary.

Further information on handling
No special handling instructions are necessary.
7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep/Store only in original container.

Advice on storage compatibility
Keep away from food, drink and animal feedingstuffs.

Further information on storage conditions
Conditions to avoid: frost.

7.3. Specific end use(s)
No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional advice on limit values
No information available.

8.2. Exposure controls

Appropriate engineering controls
No information available.

Protective and hygiene measures
Do not eat, drink, smoke or sneeze at the workplace.

Eye/face protection
Tightly sealed safety glasses.

Hand protection
Passenger-LQ

Skin protection
No information available.

Respiratory protection
No information available.

Environmental exposure controls
No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
Colour: light yellow
Odour: characteristic

pH-Value (at 20 °C): 10 - 11  DIN 19268

Changes in the physical state
Melting point: - 2 °C DIN 51556
Initial boiling point and boiling range: ca. 100 °C ASTM D 1120
Density (at 25 °C): ca. 1.1 g/cm³ DIN 12809

9.2. Other information
No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
No information available.

10.2. Chemical stability
No information available.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products
No information available.

Further information
No information available.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicocinetics, metabolism and distribution
No information available.

Acute toxicity
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>7646-85-7</td>
<td>Organic phosphoric acid (HEDP)</td>
<td>oral</td>
<td>LD50</td>
<td>2.400 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>7.500 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>65-14-7</td>
<td>benzotriazole</td>
<td>oral</td>
<td>ATE</td>
<td>500 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity
Causes skin irritation.
Causes serious eye irritation.

Sensitising effects
Based on available data, the classification criteria are not met.
Carcinogenic/mutagenic/toxic effects for reproduction
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.

Aspiration hazard
Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal
No information available.

Additional information on tests
Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Practical experience

Observations relevant to classification
No information available.

Other observations
No information available.

Further information
No information available.

SECTION 12: Ecological information

12.1. Toxicity
The product has not been tested.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Aquatic toxicity</th>
<th>Dose</th>
<th>[h]</th>
<th>[d]</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310-73-2</td>
<td>sodium hydroxide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute fish toxicity</td>
<td>LC50</td>
<td>45,4 mg/l</td>
<td>96 h</td>
<td>Onchorhynchus mykiss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2809-21-4</td>
<td>Organic phosphoric acid (HEDP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute fish toxicity</td>
<td>LC50</td>
<td>200 mg/l</td>
<td>96 h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute crustacea toxicity</td>
<td>EC50</td>
<td>100 mg/l</td>
<td>48 h</td>
<td>Daphnia magna</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
Technically correct releases of minimal concentrations to adapted biological sewage treatment facility, will not disturb the biodegradability of activated sludge.

12.3. Bioaccumulative potential
Does not accumulate in organisms.

Partition coefficient n-octanol/water

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2809-21-4</td>
<td>Organische Phosphonsäure (HEDP)</td>
<td>-3,49</td>
</tr>
</tbody>
</table>
12.4. Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment
No information available.

12.6. Other adverse effects
No information available.

Further information
No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal
Waste key product: Dispose of waste according to "Kreislaufwirtschafts- und Abfallgesetz (KrW-/AbfG)".

Contaminated packaging
Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:
No dangerous good in the sense of these transport regulations.

14.2. UN proper shipping name:
No dangerous good in the sense of these transport regulations.

14.3. Transport hazard class(es):
.

14.4. Packing group:
Hazard label:
Classification code:
Special Provisions:
Limited quantity:
Excepted quantity:
Transport category:
Hazard No:
Tunnel restriction code:

Inland waterways transport (ADN)

14.1. UN number:
No dangerous good in the sense of these transport regulations.

14.2. UN proper shipping name:
No dangerous good in the sense of these transport regulations.

14.3. Transport hazard class(es):
.

14.4. Packing group:
Hazard label:
Classification code:
Special Provisions:
Limited quantity:
Excepted quantity:

Marine transport (IMDG)

14.1. UN number:
No dangerous good in the sense of these transport regulations.

14.2. UN proper shipping name:
No dangerous good in the sense of these transport regulations.

14.3. Transport hazard class(es):
.

14.4. Packing group:
Hazard label:
Special Provisions:
Safety Data Sheet

according to Regulation (EC) No 1907/2006

Limited quantity: .
Exceptioned quantity: .
EmS: .

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: No dangerous good in the sense of these transport regulations.
14.2. UN proper shipping name: No dangerous good in the sense of these transport regulations.
14.3. Transport hazard class(es): .
14.4. Packing group: .
Hazard label: .
Special Provisions: .
Limited quantity Passenger: .
Passenger LQ: .
Exceptioned quantity: .
IATA-packing instructions - Passenger: .
IATA-max. quantity - Passenger: .
IATA-packing instructions - Cargo: .
IATA-max. quantity - Cargo: .
Danger releasing substance: .

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Other applicable information

SECTION 15: Regulatory information

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

EU regulatory information

Additional information

National regulatory information

Water contaminating class (D): 1 – slightly water contaminating
Biocide registry number: .

SECTION 16: Other information

Relevant H and EUH statements (number and full text)

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)