SAFETY DATA SHEET

1. PRODUCT

1.1 Product identifiers

Name: Chloroquine diphosphate salt
CAS-No.: 50-63-5

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

Identified uses: Laboratory chemicals, Manufacture of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal word</td>
<td>Warning</td>
</tr>
<tr>
<td>Hazard statement(s)</td>
<td>H302 Harmful if swallowed.</td>
</tr>
<tr>
<td>Precautionary statement(s)</td>
<td>P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth. P501 Dispose of contents/container to an approved waste disposal plant.</td>
</tr>
</tbody>
</table>

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Formula</th>
<th>C_{18}H_{26}ClN_{3} \cdot 2H_{3}PO_{4}</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
<td>50-63-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-055-2</td>
</tr>
</tbody>
</table>

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroquine bis(phosphate)</td>
<td>Acute Tox. 4; H302</td>
<td>-</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.2 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, nitrogen oxides (NOx), Oxides of phosphorus, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Light sensitive.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSO NAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

<table>
<thead>
<tr>
<th>Personal protective equipment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye/face protection</strong></td>
<td>Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).</td>
</tr>
<tr>
<td><strong>Skin protection</strong></td>
<td>Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail <a href="mailto:sales@kcl.de">sales@kcl.de</a>, test method: EN374</td>
</tr>
<tr>
<td><strong>Body Protection</strong></td>
<td>Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.</td>
</tr>
<tr>
<td><strong>Respiratory protection</strong></td>
<td>For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).</td>
</tr>
<tr>
<td><strong>Control of environmental exposure</strong></td>
<td>Do not let product enter drains.</td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Form: solid Colour: beige</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 200 °C (392 °F)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>no data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>no data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>50 g/l</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>no data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>no data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>no data available</td>
</tr>
</tbody>
</table>

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Light.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity**
- LD50 Oral - rat - 623 mg/kg
- Inhalation: no data available
- Dermal: no data available

**Skin corrosion/Irritation**
no data available

**Serious eye damage/eye irritation**
no data available

**Respiratory or skin sensitisation**
no data available

**Germ cell mutagenicity**
- no data available
- rat
- Liver
- Sister chromatid exchange
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity -single exposure
no data available

Specific target organ toxicity -repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: VB2450000
May cause permanent eye injury. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION
12.1 Toxicity

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>No data available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC50 - Daphnia magna (Water flea) - 49.52 mg/l - 24 h</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>No data available</td>
</tr>
<tr>
<td>Toxicity to bacteria</td>
<td>No data available</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods

<table>
<thead>
<tr>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer surplus and non-recyclable solutions to a licensed disposal company.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contaminated packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispose of as unused product.</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION
DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroquine bis(phosphate)</td>
<td>50-63-5</td>
<td>2009-07-17</td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroquine bis(phosphate)</td>
<td>50-63-5</td>
<td>2009-07-17</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity
H302 Harmful if swallowed.

HMIS Rating
Health hazard: 1
Chronic Health Hazard: *
Flammability: 0
Physical Hazard: 0

NFPA Rating
Health hazard: 1
Fire Hazard: 0
Reactivity Hazard: 0