
Issuing Date: 2014-12-03  Revision Date: 2017-08-08  Version: 2

SECTION 1. Identification

Product identifier

Product No  14774
Product name  Chloroquine

Recommended use of the chemical and restrictions on use

Identified uses  This product is intended for research purposes only.

Manufacturer, importer, supplier

Manufacturer address  Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400

Website  www.cellsignal.com
Email address  support@cellsignal.com
Emergency telephone number  In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>Reproductive toxicity</th>
<th>Specific target organ toxicity - repeated exposure (STOT RE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 4</td>
<td>Category 1A</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

Signal Word
Danger

Hazard statement(s)
Harmful if swallowed. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.
Precautionary Statement(s)
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray.
IF exposed or concerned: Get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Store locked up. Dispose of contents/container to an approved waste disposal plant.

Supplementary Hazard Information
No information available.
Hazards not otherwise classified (HNOC)
Not applicable.

SECTION 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>chloroquine bis(phosphate)</td>
<td>50-63-5</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4. First-aid measures

Eye contact
Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.
Skin contact
Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
Inhalation
Move to fresh air. Consult a physician. If not breathing, give artificial respiration.
Ingestion
Rinse mouth. Drink plenty of water. If symptoms persist, call a physician. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Toxic symptoms can occur within minutes. These consist of headache, drowsiness, visual disturbances, nausea and vomiting, cardiovascular collapse, shock and convulsions followed by sudden and early respiratory and cardiac arrest.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Early treatment with diazepam (2 mg/kg over 30 min), intubation with artificial ventilation and adrenaline (0.25 ug/kg/min with 0.25 ug/kg/min increments as needed) may improve the prognosis of patients of severe chloroquine poisoning.

Advice for emergency responders

General advice
If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.
Protection of first-aiders
Use personal protective equipment.

SECTION 5. Fire-fighting measures

Extinguishing media
Suitable Extinguishing Media  Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media  CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Explosion Data

Sensitivity to Mechanical Impact  None.
Sensitivity to Static Discharge  None.

Protective Equipment and Precautions 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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel  Ensure adequate ventilation.
Other information  No information available.

Environmental precautions
Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment  Prevent further leakage or spillage if safe to do so.
Methods for cleaning up  Use personal protective equipment. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically and collect in suitable container for disposal. Avoid dust formation. Clean contaminated surface thoroughly.

SECTION 7. Handling and storage

Precautions for safe handling
Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent the formation of vapors, mists and aerosols. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions  Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.
Packaging material  No information available.
Incompatible products  None known based on information supplied.

SECTION 8. Exposure controls/personal protection

Control parameters

Appropriate engineering controls
Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment
Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

**Eye/face protection**
Tightly fitting safety goggles.

**Skin and body protection**
Wear protective gloves/clothing.

**Respiratory protection**
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice.

### SECTION 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystalline powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>White to off-white</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>515.92 g/mol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC content</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk Density VALUE</td>
<td>No information available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 10. Stability and reactivity

**Reactivity**
No information available.

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**

<table>
<thead>
<tr>
<th>Hazardous reactions</th>
<th>None under normal processing.</th>
</tr>
</thead>
</table>
Hazardous polymerization
None under normal processing.

Conditions to Avoid
Extremes of temperature and direct sunlight.

Incompatible Materials
None known based on information supplied.

Hazardous Decomposition Products
None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation
There is no data available for this product.

Eye contact
There is no data available for this product.

Skin contact
There is no data available for this product.

Ingestion
May be fatal if swallowed.

Information on toxicological effects
This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>chloroquine bis(phosphate)</td>
<td>623 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms
Toxic symptoms can occur within minutes. These consist of headache, drowsiness, visual disturbances, nausea and vomiting, cardiovascular collapse, shock and convulsions followed by sudden and early respiratory and cardiac arrest.

Sensitization
No information available.

Mutagenic effects
No information available.

Carcinogenicity
No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity
Radioactively tagged chloroquine administered intravenously to pregnant pigmented CBA mice passed rapidly across the placenta and accumulated selectively in the melanin structures of the fetal eyes. It was retained in the ocular tissues for five months after the drug had been eliminated from the rest of the body.

STOT - single exposure
No information available.

STOT - repeated exposure
May cause disorder and damage to the: Cardiovascular system, Central nervous system, Eyes, Ears.

Neurological effects
Several cases of acute psychosis ascribed to chloroquine have been reported. Symptoms included seizures preceded by blurring of vision, confusion, agitation, aggressiveness, personality changes, psychotic symptoms and depression.

Aspiration Hazard
No information available.

SECTION 12. Ecological information

Ecotoxicity
100% of the mixture consists of components of unknown hazards to the aquatic environment.
Persistence and degradability
No information available.
Bioaccumulation
No information available.
Mobility
No information available

Other adverse effects
No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods
Dispose of in accordance with all applicable national environmental laws and regulations.

Disposal considerations
Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

North American Inventory Listing

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA 8(b)</th>
<th>TSCA 12(b)</th>
<th>DSL</th>
<th>NDSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>chloroquine bis(phosphate)</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

(Bad file name) Class D2A - Very Toxic Material at >= 0.1%

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and
Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. FIFRA Label Information
This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information
This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information
This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-12-03
Revision Date: 2017-08-08

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