Section 1 - Identification of Chemical Product and Company

Cheminova Australia Pty Ltd
A.B.N. 59 472 616 773, A.C.N. 110 199 169
12 Julius Ave, North Ryde NSW 2113
www.cheminova.com.au

Chemical nature: Mepiquat is a quaternary ammonium compound
Trade Name: Cheminova Mepiquat Plant Growth Regulator
Product Use: Cotton growth regulator for use as described on the product label.
APVMA number: 58425

Section 2 - Hazards Identification

Statement of Hazardous Nature
This product is classified as: Not classified as hazardous according to the criteria of SWA.
Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases: Not Hazardous - No criteria found.
Safety Phrases: S23, S36, S24/25. Do not breathe vapours or spray mists. Wear suitable protective clothing. Avoid contact with skin and eyes.
SUSMP Classification: None allocated.
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.
UN Number: None allocated

Emergency Overview
Physical Description & Colour: Clear red liquid.
Odour: Mild odour.
Major Health Hazards: There are no major health hazards associated with Mepiquat chloride. No significant risk factors have been found for this product.

Potential Health Effects

Inhalation:
Short Term Exposure: Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.
Long Term Exposure: No data for health effects associated with long term inhalation.

Skin Contact:
Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.
Long Term Exposure: No data for health effects associated with long term skin exposure.

Eye Contact:
Short Term Exposure: This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.
Long Term Exposure: No data for health effects associated with long term eye exposure.

Ingestion:
Short Term Exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.
Long Term Exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:
SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.

### Section 3 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Conc.%</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mepiquat (as the chloride salt)</td>
<td>24307-26-4</td>
<td>38g/L</td>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>Other non hazardous ingredients</td>
<td>secret</td>
<td>to 100</td>
<td>not set</td>
<td>not set</td>
</tr>
</tbody>
</table>

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non-hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term “peak” is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

### Section 4 - First Aid Measures

**General Information:**
You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

**Inhalation:** First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**Skin Contact:** Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.

**Eye Contact:** No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.

**Ingestion:** If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

### Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness.

Fire decomposition products from this product are likely to be irritating if inhaled.

**Extinguishing Media:** Not Combustible. Use extinguishing media suited to burning materials.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade.

**Flash point:** Does not burn.

**Upper Flammability Limit:** Does not burn.

**Lower Flammability Limit:** Does not burn.

**Autoignition temperature:** Not applicable - does not burn.

**Flammability Class:** Does not burn.

### Section 6 - Accidental Release Measures

**Accidental release:** Minor spills do not normally need any special cleanup measures. In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8).

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for
Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:


SWA Exposure Limits

<table>
<thead>
<tr>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Mepiquat (as the chloride salt) is set at 0.15mg/kg/day. The corresponding NOEL is set at 15mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Taken from Australian ADI List, March 2010.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.

Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

Safety deluge showers should, if practical, be provided near to where this product is being used.

Section 9 - Physical and Chemical Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Description &amp; colour</td>
<td>Clear red liquid.</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild odour.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Approximately 100°C at 100kPa.</td>
</tr>
<tr>
<td>Freezing/Melting Point</td>
<td>Approximately 0°C.</td>
</tr>
<tr>
<td>Volatiles</td>
<td>Water component.</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>2.37 kPa at 20°C (water vapour pressure).</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>No data.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No data.</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Completely soluble in water.</td>
</tr>
<tr>
<td>pH</td>
<td>7.5-9.5 (as supplied).</td>
</tr>
<tr>
<td>Volatility</td>
<td>No data.</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data.</td>
</tr>
</tbody>
</table>
Evaporation Rate: No data.
Coeff Oil/water Distribution: No data
Autoignition temp: Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: No particular Incompatibilities.

Fire Decomposition: Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Combustion forms carbon dioxide, and if incomplete, carbon monoxide and smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form hydrogen chloride gas, other compounds of chlorine. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Toxicity: There are no major health hazards associated with Mepiquat chloride. Mepiquat chloride was fed to pure bred beagle dogs (4/sex/dose level), 10 months of age, for 90 days in the diet at 0, 100, 300, 1000, and 3000 ppm (0, 2.5, 7.5, 25, and 75 mg/kg/day). No effects were observed at the 100, 300, and 1000 ppm dose levels. At 3000 ppm (75 mg/kg/day), HDT, effects included the following: sedation and tonoclonic spasms; decreased food intake and body weights; decreased haemoglobin and RBC; and increased haematocrit and reticulocytes.

Mepiquat Chloride:
LD$_{50}$ Oral, Rat 454mg/kg
LD$_{50}$ Dermal, Rat = >2000mg/kg
LC$_{50}$ Inhalation, Rat = >3.2mg/L/7hr

Classification of Hazardous Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mepiquat (as The Chloride Salt)</td>
<td>Conc&gt;=25%; Xn; R22</td>
</tr>
</tbody>
</table>

Section 12 - Ecological Information

Insufficient data to be sure of status. The following applies to Mepiquat Chloride preparations.

ENVIRONMENTAL SUMMARY: Do not apply directly to water, to areas where surface water is present. Do not contaminate water when disposing of rinsate or equipment wash water. Do not contaminate water by cleaning of equipment.

FISH TOXICITY: (Technical) 96 hour LC, Rainbow trout - 4,300 μg/L 96 hour LC$_{50}$, Bluegill – unknown
AVIAN TOXICITY: (Technical) Oral LD$_{50}$, Bobwhite quail - >2000mg/kg Oral LD$_{50}$, Mallard duck - >2000mg/kg
BEE TOXICITY: Non toxic.
WORMS: LC$_{50}$ (14d) for Eisena foetida 440mg/kg soil
ALGAE: EC$_{50}$ (cell volume) (72hr) for Pseudokirchneriella subcapitata >1000mg/L

Section 13 - Disposal Considerations

Disposal: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 http://www.chemclear.com.au/ and for help with the disposal of empty drums, contact DrumMuster http://www.drummuster.com.au/ where you will find contact details for your area.
Section 14 - Transport Information

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredient: Mepiquat, is mentioned in the SUSMP.

Section 16 - Other Information

This Material Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

DISCLAIMER

This product must be used, stored and handled strictly as directed in accordance with this Safety Data Sheet, the label, packaging and other reference material (“Directions”). To the extent permitted by law Cheminova Pty Ltd and its related companies will have no liability for any injury, loss or damage arising from a failure to follow the Directions.