Paraquat-MATERIAL SAFETY DATA SHEET

Manufacturer/information service:
ZHEJIANG RAYFULL CHEMICALS CO., LTD
ADD: NO.113 PUXING ROAD, PUZHOU INDUSTRIAL PARK, LONGWAN DISTRICT, WENZHOU ZHEJIANG P.R. CHINA
Tel: +86-577-88905587            Fax: +86-577-88905567
Email: info@rayfull.com            sales@rayfull.com

1. Chemical Product Identification
   Product Name: Paraquat
   Molecular Formula: CH₃(C₅H₄N)₂CH₃Cl₂
   Molecular Weight: 257.2
   Structural Formula:

   \[ \text{Chemical Name: 1,1'-dimethyl-4,4'-bipyridylium dichloride} \]
   Form: liquid
   Color: blue to green
   Odor: Faint ammoniacal
   CAS No.: 1910-42-5

2. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Composition</th>
<th>CAS No.</th>
<th>Content %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate</td>
<td>1910-42-5</td>
<td>42.0</td>
</tr>
<tr>
<td>Other ingredients</td>
<td></td>
<td>58.0</td>
</tr>
</tbody>
</table>

3. Hazards Identification
   Inhalation: Cough. Laboured breathing. Sore throat.
   Skin contact: Harmful if absorbed through skin.
   Eyes contact: Causes substantial but temporary eye injury
Ingestion: May be fatal if swallowed.

4. First Aid Measures

Inhalation: Fresh air, rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention. Skin contact: Flush skin with running water for a minimum of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention immediately.

Eyes contact: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor

Ingestion: Rinse mouth. Give plenty of water or bentonite clay in water, or give a slurry of activated charcoal in water to drink. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

5. Fire-Fighting Measures

Fire and explosion:
Flash Point: 194F
Flammable Limites(% in Air): Lower: % Not Applicable Upper: % Not Applicable
Autoignition Temperature: >1157F
Flammability: Combustible liquid

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing media: In case of fire in the surroundings: powder, water spray, foam, carbon dioxide. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. Accidental Release Measures

Consult an expert! Collect leaking and spilled liquid in sealed containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Sweep spilled substance into dry, sealed containers. Carefully collect remainder, then remove to safe place (extra personal protection: P3 filter respirator for toxic particles).

7. Handling And Storage

Handling: NO contact with oxidizing agents. Local exhaust or breathing protection. Protective gloves. Protective clothing.
Storage: Keep locked up. Separated from strong oxidants, strong bases, food and feedstuffs. Dry. Keep in the dark. Store above 32°F. Wash thoroughly with soap and water after handling.

8. Exposure Controls/Personal Protection

Repeated or prolonged contact with skin may cause dermatitis, abnormalities and loss of fingernails. Lungs may be affected by repeated or prolonged exposure to the aerosol.

Ingestion: Prevent eating, drinking. Wash thoroughly with soap and water after handling.

Eye Contact: Where eye contact, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with and eyewash facility and a safety shower.

Skin Contact: wear chemical-resistant (such as nitrile or butyl)gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits.

9. Physical and Chemical Properties

Appearance: Blue and green liquid

Density: 1.15

Vapor pressure: < 0.1mPa

pH: 2.0 – 6.0

10. Stability and Reactivity

Stable under normal use and storage conditions. The substance decomposes under influence of UV light producing toxic and corrosive fumes including nitrogen oxides, hydrogen chloride. Reacts with strong oxidants. Reacts with bases (hydrolysis). Unformulated products are corrosive to common metals. Inactivated by inert clays and by anionic surfactants.

11. Toxicological Information

Acute toxicity oral to female rats: LD50 is 90.9mg/kg
Acute toxicity oral to male rats: LD50 is 88.0mg/kg
Acute toxicity dermal to female rats: LD50 is 287mg/kg
Acute toxicity dermal to male rats: LD50 is 237mg/kg
Eye Contact: Moderately Irritation (Rabbit)
Skin Contact: Slightly Irritation (Rabbit)
Skin Sensitization: Not a skin sensitizer in animal tests.

Other Toxicity Information: the health hazard assessment is based on the results of animal toxicity testing and reports of accidental human exposures.

12. Ecological And Ecotoxicological Information
Summary of Effects: Paraquat dichloride is toxic to wildlife.
Eco=Chronic Toxicity: Paraquat dichloride: Not Available.
Environmental Fate: No data available for the formulation. The information presented here is for the active ingredient, paraquat dichloride.

13. Disposal Considerations
Additional inform.: Paraquat is rapidly adsorbed and de-activated in soil. Observe all federal state and local environmental regulations. Permitted for hazardous waste.

14. Transport Information
Not applicable.

15. Regulatory Information
Not applicable.

16. Other Information
All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.