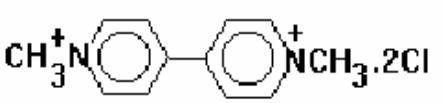
Hangzhou Tianlong Biotechnology Co., Ltd.
Add: Room 1906, Fengqi Times Tower, No.338, Fengqi East Road, Hangzhou, Zhejiang, China.

MATERIAL SAFETY DATA SHEET

1. Chemical Product and company Identification

Product Name: Paraquat
Molecular Formula: $C_{12}H_{14}N_2Cl_2$
Molecular Weight: 257
Structural Formula:



Chemical Name: 1,1'-dimethyl-4,4'-bipyridylium dichloride
CAS No.: 1910-42-5
Supplier: HANZHOU TIANLONG BIOTECHNOLOGY CO., LTD
Address: Room 1906, Fengqi Times Tower, No.338 Fengqi East Road, Hangzhou, China, 310020
Tel: 0086-571-87214516
Fax: 0086-571-87079476

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Paraquat	1910-42-5	42.0
Other ingredients		58.0

3. Hazards Identification

Symptoms of acute exposure: Irritant to skin and eye. May be fatal if swallowed. Harmful if absorbed through skin. Causes substantial but temporary eye injury.

4. First Aid Measures

Ingestion: Immediate medical attention is required. If available, give an adsorbent such as activated charcoal or bentonite. Call a poison control center or doctor immediately for treatment advice. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation: Move person to fresh air. The odor of this product is from the stenching agent, which has been added, not from the paraquat. If person is not breathing, call an ambulance. Call a poison control center or doctor for

further treatment advice.

5. Fire-Fighting Measures

In Case of Fire: use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke 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.

Hazardous decomposition products

Combustion products of dry material: Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride; possible trace amounts of phosgene, nitrogen oxides, ammonia and other toxic and noxious fumes.

Unusual Fire, Explosion and Reactivity Hazards

Hydrolyzes in alkaline media. This product reacts with aluminum to produce hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and

flash back.

6. Accidental Release Measures

In Case of Spill or Leak: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent. Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. Handling And Storage

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material.

Wash thoroughly with soap and water after handling.

8. Exposure Controls/Personal Protection

Ingestion: prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

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

Skin contact: where contact is likely, wear chemical-resistant gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: a respirator is not normally required when handing this substance. Use effective engineering controls to comply with occupational exposure limits.

9. Physical and Chemical Properties

Appearance: White powder

Decomposition point: 300℃

Density: 1.24-1.26@20℃

Vapor pressure: < 0.1mPa pH: 4.0 –6.0

Solubility: 700g/l in water, and insoluble in most organic solvents

10. Stability and Reactivity

Stability: stable under ordinary conditions of use and storage.

Hazardous Polymerization: will not occur.

Conditions to Avoid: stable in acidic and neutral solution. Decomposed by alkali and in the presence of U.V. light. Compound inactivated by adsorption onto inert clay.

Materials to Avoid: hydrolyzes in alkaline media. This product reacts with aluminum to produce hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings.

11. Toxicological Information

Acute oral LD_{50}: 205mg/kg for rats

Acute dermal LD_{50}: 500mg/kg for rats and 235mg/kg for rabbits

Skin and Eye irritation: moderately irritant for rabbits

Skin sensitization: not a skin sensitizer in animal tests.

12. Ecological Information

Birds: Acute oral LD_{50}:175mg/kg for bobwhites quail, 199mg/kg for mallard ducks
Fish: LC50 (96h) is 26mg/l for rainbow trout, mirror cap 135mg/l
Daphnia: EC_{50} (48h): 61.mg/l
Algae: EC_{50} (96h): 0.10mg/l
Bees: LD_{50}: 150μg/bee (contact), 36μg/bee (oral)
Earthworm: LC_{50} (14days): ＞1380mg/kg soil

13. Disposal Considerations

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

14. Transport Information

Class: 6.1 UN. No.: 2781 Racking group: II

15. Regulatory Information

Very toxic
Dangerous for the environment
Risk phrases:
Toxic in contact with skin and if swallowed
Very toxic by inhalation
Irritating to eyes, respiratory system and skin
Toxic: danger of serious damage to health by prolonged exposure if swallowed
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Safety phrases:
Keep locked-up and out of reach of children
Keep away from food, drink and animal feeding stuffs
When using, do not eat, drink or smoke
Do not breathe spray
Wear suitable protective clothing, gloves and eye/face protection
Use appropriate containment to avoid environmental contamination

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.