

MATERIAL SAFETY DATA SHEET

In accordance with GHS Standard

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name:	PERA FORCE
Brand Name:	Binz Life Science
Active Ingredient:	Paraquat 20% SL
Formulation:	SL (Soluble Liquid)
Chemical Family:	Bipyridylium Herbicide
Product Type:	Herbicide
Recommended Use:	Non-selective contact herbicide for the control of annual and perennial grasses and broadleaf weeds in agricultural and non-crop areas.
Manufacturer:	Binz Life Science
Country of Origin:	Pakistan

Note: Company address and emergency contact details have been intentionally omitted from this document.

2. HAZARD IDENTIFICATION

GHS Classification:

- Acute Toxicity - Oral: Category 3
- Acute Toxicity - Dermal: Category 3
- Acute Toxicity - Inhalation: Category 2
- Skin Corrosion/Irritation: Category 2
- Serious Eye Damage/Eye Irritation: Category 2A
- Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory tract irritation)
- Specific Target Organ Toxicity (Repeated Exposure): Category 1 (Lungs, Kidneys)

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- Hazardous to the Aquatic Environment - Acute Hazard: Category 1
 - Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1

GHS Label Elements:

Signal Word: DANGER

Hazard Statements:

- **H301:** Toxic if swallowed.
- **H311:** Toxic in contact with skin.
- **H330:** Fatal if inhaled.
- **H315:** Causes skin irritation.
- **H319:** Causes serious eye irritation.
- **H335:** May cause respiratory irritation.
- **H372:** Causes damage to organs (lungs, kidneys) through prolonged or repeated exposure.
- **H410:** Very toxic to aquatic life with long-lasting effects.

Precautionary Statements:

- **Prevention:** Do not breathe mist/vapors/spray. Wash skin thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face shield. Wear respiratory protection.
- **Response:** IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Collect spillage.
- **Storage:** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Concentration (% w/w)
Paraquat Dichloride (Active Ingredient)	1910-42-5	20.0%
Emetic (e.g., PP796) and Safeners	Proprietary	< 1.0%
Surfactants, Solvents, and Inert Ingredients	Not applicable	Balance to 100%

4. FIRST AID MEASURES

SPEED IS ESSENTIAL. IMMEDIATE MEDICAL ATTENTION IS REQUIRED IN ALL CASES OF SUSPECTED POISONING.

- **General Advice:** Have the product container, label, or Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment.
- **If Swallowed:** OBTAIN IMMEDIATE MEDICAL ATTENTION. SPEED IS ESSENTIAL. Do not induce vomiting unless directed to do so by medical personnel. If the person is conscious, immediately administer an adsorbent such as Fuller's Earth (15% solution) or Bentonite clay, followed by a suitable purgative (e.g., magnesium sulfate). Never give anything by mouth to an unconscious person.
- **If Inhaled:** Move person to fresh air. If person is not breathing, call an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
- **If on Skin or Clothing:** Take off contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Paraquat can be absorbed through intact skin, and broken skin can dramatically increase absorption rates.
- **If in Eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- **Note to Physician:** Paraquat is a bipyridylium contact herbicide. Rapid treatment is essential. Administer Fuller's Earth or Bentonite to neutralize remaining toxin in the GI tract. Hemodialysis or hemoperfusion may be necessary. Oxygen therapy should be avoided or minimized unless absolutely necessary, as oxygen enhances the toxicity of paraquat in the lungs, accelerating pulmonary fibrosis.

5. FIRE FIGHTING MEASURES

- **Extinguishing Media:** Use dry chemical, foam, or carbon dioxide (CO₂). Do not use direct water stream as it may spread the spill or scatter the material.
- **Specific Hazards Arising from the Chemical:** Product is non-combustible as formulated (aqueous). However, if involved in a major fire, thermal decomposition may generate toxic and irritating fumes, including carbon oxides, nitrogen oxides (NO_x), hydrogen chloride gas, and chlorine.
- **Special Protective Equipment for Firefighters:** Firefighters must wear full protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **Specific Firefighting Methods:** Evacuate downwind. Contain runoff water with dikes to prevent entry into sewers or waterways. Decontaminate emergency personnel and equipment with soap and water before leaving the fire area.

6. ACCIDENTAL RELEASE MEASURES

- **Personal Precautions, Protective Equipment and Emergency Procedures:** Isolate the hazard area. Keep unnecessary and unprotected personnel from entering. Wear appropriate personal protective equipment (PPE) as specified in Section 8. Do not breathe vapors or mist. Avoid contact with skin, eyes, and clothing.
- **Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Do not allow product to enter sewers, surface water, groundwater, or any waterways. Advise local authorities if significant spillages cannot be contained.
- **Methods and Materials for Containment and Cleaning Up:**
 - **Small Spills:** Absorb with an inert liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Collect in suitable, closed containers for disposal.
 - **Large Spills:** Dike the spilled area to prevent runoff. Pump the liquid into salvage tanks. Absorb the remaining residue with inert absorbent material and place into chemical waste containers. Wash the spill area with a strong detergent and water, absorbing the wash water for separate disposal.

7. HANDLING AND STORAGE

- **Precautions for Safe Handling:** **FATAL IF SWALLOWED.** Strictly avoid ingestion, inhalation, and contact with skin or eyes. Use only in well-ventilated areas. Wear complete personal protective equipment (see Section 8). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

- **Conditions for Safe Storage, Including Any Incompatibilities:** Store strictly in the original container. Keep container tightly closed in a dry, cool, and well-ventilated place. **STORE LOCKED UP.** Keep out of reach of children, unauthorized persons, and animals. Do not store near food, feedstuffs, fertilizers, or seed. Do not store in contact with aluminum, galvanized iron, or mild steel as hydrogen gas may be generated, creating a fire or explosion hazard.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Component	OSHA PEL	ACGIH TLV
Paraquat Dichloride	0.5 mg/m ³ (Respirable dust)	0.1 mg/m ³ (Respirable fraction)

Engineering Controls:

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash station and a safety shower.

Personal Protective Equipment (PPE):

- **Eye/Face Protection:** Wear chemical splash goggles and a full-face shield to prevent liquid contact with eyes and face.
- **Skin Protection:** Wear appropriate chemical-resistant, long-sleeved coveralls over normal clothing, and chemical-resistant footwear plus socks. A chemical-resistant apron is required when mixing, loading, or cleaning equipment.
- **Hand Protection:** Wear chemical-resistant gloves made of any waterproof material (e.g., barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride (PVC), or Viton).
- **Respiratory Protection:** If airborne concentrations exceed exposure limits, wear a NIOSH-approved particulate respirator equipped with an N, R, or P filter, or a supplied-air respirator depending on the application environment and airborne concentrations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark blue or dark green liquid (typically dyed to deter accidental ingestion)
Odor:	Strong, characteristic pungent odor (stenching agent added)
Physical State:	Liquid
pH (1% aqueous solution):	6.0 - 8.0
Specific Gravity / Density:	1.05 - 1.10 g/mL at 20°C
Solubility in Water:	Miscible in all proportions
Flash Point:	Not applicable (aqueous formulation)
Flammability:	Non-flammable
Oxidizing Properties:	Not an oxidizer

10. STABILITY AND REACTIVITY

- **Reactivity:** Corrosive to some metals. May react with aluminum to produce hydrogen gas.
- **Chemical Stability:** Stable under normal, recommended storage and handling conditions.
- **Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- **Conditions to Avoid:** Extreme heat, freezing conditions, and direct sunlight over extended periods.
- **Incompatible Materials:** Aluminum, iron, mild steel, galvanized steel. Highly reactive with strong alkalis and strong oxidizing agents.
- **Hazardous Decomposition Products:** Combustion or thermal decomposition may evolve toxic and irritant vapors including carbon monoxide, carbon dioxide, nitrogen oxides, and hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity Data (Estimated for Paraquat 20% SL formulation):

- **Acute Oral LD50 (Rat):** ~150 - 200 mg/kg (**Toxic**)

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- **Acute Dermal LD50 (Rat/Rabbit):** ~200 - 300 mg/kg (**Toxic**)
 - **Acute Inhalation LC50 (Rat, 4 hr):** ~0.6 - 1.5 mg/L (**Fatal if inhaled as aerosol/mist**)

Local Effects:

- **Skin Irritation:** Causes moderate to severe skin irritation. May cause burning sensation and localized tissue damage. Intact skin provides a moderate barrier, but broken skin rapidly absorbs the toxicant.
- **Eye Irritation:** Causes serious eye irritation and potential for corneal damage if not washed out immediately.
- **Sensitization:** Not generally recognized as a skin sensitizer.

Chronic Toxicity / Target Organ Effects:

- **Target Organs:** Lungs, Kidneys, Liver, Gastrointestinal tract.
- **Chronic Effects:** Prolonged or repeated exposure can cause permanent lung damage (pulmonary fibrosis) and severe renal failure. Delayed effects are common with paraquat exposure.
- **Carcinogenicity:** Not classified as a carcinogen by IARC, NTP, or OSHA.
- **Mutagenicity / Teratogenicity:** Not considered mutagenic or teratogenic based on animal studies.

12. ECOLOGICAL INFORMATION

- **Ecotoxicity:** **Highly toxic to aquatic organisms and terrestrial wildlife.**
 - Fish (Rainbow Trout) LC50 (96h): ~15 mg/L
 - Daphnia magna EC50 (48h): ~1.2 mg/L
 - Algae (*Pseudokirchneriella subcapitata*) EC50 (72h): ~0.3 mg/L
 - Birds (Bobwhite Quail) Acute Oral LD50: ~175 mg/kg
 - Bees: Relatively non-toxic to bees. LD50 (contact) > 100 µg/bee.
 - **Persistence and Degradability:** Paraquat is highly persistent in soil but is biologically inactive because it binds rapidly and strongly to clay and soil organic matter.
 - **Bioaccumulative Potential:** Low potential for bioaccumulation (log Pow < 0).
 - **Mobility in Soil:** Immobile in soil due to strong adsorption to soil particles. Will not generally leach into groundwater under normal agricultural conditions.
 - **Other Adverse Effects:** Avoid release to the environment. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark.
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13. DISPOSAL CONSIDERATIONS

- **Waste Disposal Method:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of environmental law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest environmental protection office for guidance.
- **Container Disposal:** Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

14. TRANSPORT INFORMATION

This product is classified as a Dangerous Good for transport purposes.

Regulation	UN Number	Proper Shipping Name	Transport Hazard Class	Packing Group	Environmental Hazards
IMDG (Sea)	UN 3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC (Contains Paraquat)	6.1	III	Marine Pollutant
IATA (Air)	UN 3016	Bipyridilium pesticide, liquid, toxic (Contains Paraquat)	6.1	III	Environmentally Hazardous
ADR/RID (Road/Rail)	UN 3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC (Contains Paraquat)	6.1	III	Environmentally Hazardous

Special Precautions for User: Transport strictly within closed, upright, and secure containers. Ensure transport personnel are aware of emergency procedures in the event of a spill or accident.

15. REGULATORY INFORMATION

- **National Regulations:** Product is subject to local pesticide registration requirements and hazardous chemical management acts in the country of origin/use. (Restricted Use Pesticide in many jurisdictions).
- **GHS Compliance:** This Safety Data Sheet has been prepared in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
- **International Agreements:** Paraquat dichloride is subject to the Rotterdam Convention on Prior Informed Consent (PIC) in some formulations. Ensure compliance with international trade treaties prior to export.

16. OTHER INFORMATION / DISCLAIMER

Revision Date: July 2026

Version: 1.0

Disclaimer:

The information provided in this Material 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.

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