

MATERIAL SAFETY DATA SHEET



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SANONDA HERBICIDE PARAQUAT 250SL

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product Name:	Sanonda Herbicide Paraquat 250SL
Product Use:	Water soluble herbicide for non-selective control of many annual and perennial weeds.
Substance:	Quaternary ammonium herbicide
Poison Schedule:	S7
Chemical Family:	1,1'-dimethyl-4,4'-bipyridinium (IUPAC)
Supplier:	Sanonda (Australia) Pty Ltd
ACN:	059 813 973
Street Address:	Suite 822, St Kilda Rd Towers, No. 1 Queens Rd, Melbourne, VIC 3004
Telephone:	03 9863 8081
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Emergency phone number:	03 9863 8081

2. HAZARD IDENTIFICATION

Statement of Hazardous Nature

This product is classified as: Hazardous according to the criteria of SWA Australia. Dangerous according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases:

R41, R24/25, R37/38, R51. Risk of serious damage to eyes. Toxic in contact with skin and if swallowed. Irritating to respiratory system and skin. Toxic to aquatic organisms.

Safety Phrases:

S20, S23, S38, S45, S1/2, S24/25, S36/37/39.

When using, do not eat or drink. Do not breathe vapours or mists. In case of insufficient ventilation, wear suitable respiratory equipment. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show the label where possible). Keep locked up and out of reach of children. Avoid contact with skin and eyes. Wear suitable protective clothing, gloves and eye/face protection.

SUSMP Classification:

S7

ADG Classification:

Class 6.1 (Toxic substances).

UN Number:

3016, BIPYRIDILUM PESTICIDE, LIQUID, TOXIC

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Emergency View

Physical Description & colour:

Clear dark blue liquid.

Odour:

Obnoxious odour.

Major Health Hazards:

Toxic in contact with skin and if swallowed, may cause serious damage to eyes, irritating to respiratory system and skin. **MAY BE FATAL IF SWALLOWED.**

Potential Health Effects

Mild poisoning occurs at <20mg paraquat ion/kg body weight. The effects are vomiting and diarrhoea. Moderate to severe poisoning occurs at 20-30 mg paraquat ion/kg body weight. The effects are vomiting, abdominal discomfort, soreness and inflammation of the mouth, throat and oesophagus, difficulty in swallowing and, later, diarrhoea. Kidney and liver damage may appear 1-3 days after exposure. Can cause death by a delayed proliferating fibrosis of the lung within 1-3 weeks. Lethal poisoning occurs at >30mg paraquat ion/kg body weight. The effects are nausea and vomiting, and can cause death by multi-organ failure and circulatory collapse within 48 hours.

Studies in animals have shown that repeated doses of paraquat do not produce carcinogenic nor teratogenic effects or adverse reproductive effects. The dietary no effect level in the rat was 25 ppm of paraquat over 2 years.

Inhalation

Short term exposure:

Significant inhalation exposure is considered to be unlikely. Nose bleeding and soreness of the throat may result from spray mist or dust trapped on the nasal mucosa. Irritating to the respiratory system. Pulmonary oedema may occur up to 48 hours after exposure and could prove fatal. This product contains pyridine to give an offensive smell. This has been done to reduce the likelihood of accidental ingestion. Pyridine may cause headaches and nausea in some people when inhaled. The presence of this offensive smell in the air does not necessarily indicate the presence of paraquat.

Skin Contact

Short term exposure:

Available data shows that this product is toxic, but further symptoms are not available. In addition product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased. Contamination of nails may cause white spots; possible nail cracking or even loss in severe cases.

Eye Contact

Short term exposure:

Exposure via eyes is considered to be unlikely. This product is a severe eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms such as swelling of eyelids and blurred vision may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment is likely to cause permanent damage.

Ingestion

Short term exposure:

Significant oral exposure is considered to be unlikely. Available data shows that this product is toxic, see symptoms above.

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Carcinogen Status

SWA: No significant ingredient is classified as carcinogenic by SWA.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: Pyridine is Class 3 - unclassifiable as to carcinogenicity to humans.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredients	CAS No	Concentration ,%	TWA(mg/m ³)	STEL(mg/m ³)
Paraquat dichloride	1910-42-5	25	Not set	Not set
Pyridine	110-86-1	<10	16	Not set
Non hazardous emulsifiers	Secret	10-30	Not set	Not set
Other non-hazardous ingredients	Secret	1-3	Not set	Not set
Water	7732-18-5	to 100	Not set	Not set

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

The 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 should not be exceeded for more than 15 minutes and should not be repeated for 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.

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:

If irritation occurs, contact a Poisons Information Centre, or call a doctor. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. In severe cases, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact:

If significant skin contact occurs, wash gently and thoroughly with water (use non- abrasive soap if necessary) for 10 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). Contact a Poisons Information Centre, or call a doctor at once.

Eye Contact:

Quickly and gently blot or brush away product. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water until the product is removed or until a few minutes after irritation has ceased, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

Ingestion:

If swallowed, rinse mouth thoroughly with water and contact a Poisons Information Centre, or call a doctor at once. Give activated charcoal if instructed.

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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.

This product is likely to decompose only after heating to dryness, followed by further strong heating. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media:

Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.

Fire Fighting:

If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is liquid-tight chemical protective clothing and breathing apparatus.

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.

6. ACCIDENTAL RELEASE MEASURES

Accidental release:

In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. 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. It should be fitted with a type G cartridge, suitable for agricultural chemicals.

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. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. 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 specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

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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:

This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. Store in a cool, well ventilated area. Check containers periodically for leaks. Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. If you keep more than 1000kg or 1000L of Toxic Substances of Packaging Group III, you will require a license to do so. If you have any doubts, we suggest you contact your licensing authority

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

Respiratory equipment:	AS/NZS 1715
Protective Gloves:	AS 2161
Occupational Protective Clothing:	AS/NZS 4501 set 2008
Industrial Eye Protection:	AS1336 and AS/NZS 1337
Occupational Protective Footwear:	AS/NZS2210

SWA Exposure Limits	TWA (mg/m³)	STEL (mg/m³)
Pyridine	16	Not set

The ADI for Paraquat dichloride trihydrate is set at 0.004mg/kg/day. The corresponding NOEL is set at 0.45mg/kg/day.

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:

No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists are minimised.

Eye Protection:

Protective glasses or goggles must be worn when this product is being used. Failure to protect your eyes may lead to severe harm to them or to general health. Emergency eye wash facilities must also be available in an area close to where this product is being used.

Skin Protection:

It is essential that all skin areas are adequately covered by impermeable gloves, overalls, hair covering, apron and face shield. See below for suitable material types.

Protective Material Types:

We suggest that protective clothing be made from the following: rubber, PVC.

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Respirator:

If there is a significant chance that vapours or mists are likely to build up in the area where this product is being used, we recommend that you use a respirator. It should be fitted with a type G cartridge, suitable for agricultural chemicals.

Eyebaths or eyewash stations and safety deluge showers should be provided near to where product is being used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Description & colour:	Clear dark blue liquid.
Odour:	Obnoxious odour.
Boiling Point:	Approximately 100°C at 100kPa.
Freezing/Melting Point:	Approximately 0°C.
Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	1.17 at 20°C
Water Solubility:	Completely soluble in water.
pH:	5.0-6.5 (1% in water)

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:

Strong oxidising agents.

Fire Decomposition:

This product is likely to decompose only after heating to dryness, followed by further strong heating. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Hydrogen chloride gas, other compounds of chlorine. Water. 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 is unlikely to undergo polymerisation processes

11. TOXICOLOGICAL INFORMATION

Toxicity:

Paraquat Dichloride:

LD₅₀ Oral, Rat 157mg/kg;

LD₅₀ Oral, Mouse = 104mg/kg

LD₅₀ Oral, Guinea Pig = 22-42mg/kg;

LD₅₀ Oral, Dog = 25-50mg/kg

LD₅₀ Dermal, Rat = 236-500mg/kg

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12. ECOLOGICAL INFORMATION

Ecotoxicity

Effects on birds:

The compound is moderately toxic to birds, with reported acute oral LD₅₀ values of 981 mg/kg and 970 mg/kg in bobwhite and Japanese quail, respectively. The reported 5- to 8-day dietary LC₅₀ value for the compound is 4048 ppm in mallards.

Effects on aquatic organisms:

Paraquat is slightly to moderately toxic to many species of aquatic life, including rainbow trout, bluegill, and channel catfish. The reported 96-hour LC₅₀ for paraquat is 32 mg/L in rainbow trout, and 13 mg/L in brown trout. The LC₅₀ for the aquatic invertebrate *Daphnia pulex* is 1.2 to 4.0 mg/L. In rainbow trout exposed for 7 days to paraquat, the chemical was detected in the gut and liver, but not in the meat of the fish. Aquatic weeds may bioaccumulate the compound. In one study, 4 days after paraquat was applied as an aquatic herbicide, weeds sampled showed significant residue levels. At high levels, paraquat inhibits the photosynthesis of some algae in stream waters.

Effects on other organisms:

Paraquat is nontoxic to honey bees.

Environmental fate

Breakdown in soil and groundwater:

Paraquat is highly persistent in the soil environment, with reported field half-lives of greater than 1000 days. The reported half-life for paraquat in one study ranged from 16 months (aerobic laboratory conditions) to 13 years (field study). Ultraviolet light, sunlight, and soil microorganisms can degrade paraquat to products which are less toxic than the parent compound. The strong affinity for adsorption by soil particles and organic matter may limit the bioavailability of paraquat to plants, earthworms, and microorganisms. The bound residues may persist indefinitely and can be transported in runoff with the sediment. Paraquat is not significantly mobile in most soils. That which does not become associated with soil particles can be decomposed to a nontoxic end product by soil bacteria. Thus, paraquat does not present a high risk of groundwater contamination. Of 721 groundwater samples analyzed, only one contained paraquat, at a concentration of 20 mg/L.

Breakdown in water:

Paraquat will be bound to suspended or precipitated sediment in the aquatic environment, and may be even more highly persistent than on land due to limited availability of oxygen. It had a half-life in a laboratory stream water column of 13.1 hours. In another study, paraquat dichloride was stable for up to 30 days. In a third study of low levels in water, paraquat had a half-life of 23 weeks.

Breakdown in vegetation:

Paraquat dichloride droplets decompose when exposed to light after being applied to maize, tomato, and broad-bean plants. Small amounts of residues were found in potatoes treated with paraquat as a desiccant, and boiling the potatoes did not reduce the residue.

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13. DISPOSAL CONSIDERATIONS

Disposal: Instructions concerning the disposal of this product and its containers are given on the product label. These should be carefully followed.

14. TRANSPORT INFORMATION

ADG Code:

3016, BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC

Hazchem Code: 2X

Special Provisions: 61, 223, 274

Limited quantities: ADG 7 specifies a Limited Quantity value of 5 L for this class of product.

Dangerous Goods Class: Class 6.1, Toxic Substances.

Packaging Group: III

Packaging Method: P001, IBC03, LP01

Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

15. REGULATORY INFORMATION

Poisons Schedule S7

Packaging & Labelling: DANGER
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

AICS: All of the significant ingredients in this formulation are to be found in the public AICS Database. The ingredient of Paraquat is mentioned in the SUSMP.

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16. OTHER INFORMATION

This MSDS contains only safety-related information. For other data see product literature.

All due care and skill, so far as practicable, has been applied in the preparation and collation of the information in this MSDS. Each user of the Product named in this MSDS should read and consider the information contained in this MSDS in the context of how the Product will be stored, handled, used or applied in the workplace. In all circumstances, it is the responsibility of the user of the Product to ensure that they have sought out the relevant safety data appropriate to their particular situation. Nothing contained in this MSDS shall be construed as a representation or recommendation to the user about the suitability or otherwise of the Product named in this MSDS for the user's particular situation. If the user requires any clarification or further information, the user should contact Sanonda (Australia) Pty Ltd.

CONTACT POINT:

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Suite 822, St Kilda Road Towers,
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Telephone: 03 9863 8081
Facsimile: 03 9863 8083

National Poisons Information Centre: Dial 13 11 26 (from anywhere in Australia)

Please read all labels and booklets carefully before using product.