

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 1 of 6

Section 1 - Identification of The Material and Supplier

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Chemical nature: Active ingredients are quaternary ammonium salts.
Trade Name: Genfarm Di-Par 250 Herbicide
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: May, 2005
This version issued: September, 2010 and is valid for 5 years from this date.

Section 2 - Hazards 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: R26, R43, R48/24/25, R36/37/38, R50/53. Very toxic by inhalation. May cause sensitisation by skin contact. Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

Safety Phrases: S13, S23, S28, S29, S35, S38, S45, S57, S61, S1/2, S20/21, S24/25, S36/37/39. Keep away from food, drink and animal feeding stuffs. Do not breathe vapours or mists. After contact with skin, wash immediately with plenty of soap and water. Do not empty into drains. This material and its container must be disposed of in a safe way. 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). Use appropriate container to avoid environmental contamination. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Keep locked up and out of reach of children. When using, do not eat, drink or smoke. 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, BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC

Emergency Overview

Physical Description & colour: Dark green/blue liquid.

Odour: Characteristic unpleasant pyridine odour.

Major Health Hazards: very toxic by inhalation, may cause serious damage to health by prolonged exposure, toxic in contact with skin and if swallowed, irritating to eyes, respiratory system and skin, possible skin sensitiser.

Potential Health Effects

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.

Long Term exposure: No data for health effects associated with long term inhalation.

Skin Contact:

Short term exposure: Available data shows that this product is toxic. Contamination of the nails may cause white spots or in severe cases cracking and loss of the nail. Normal growth follows without delay. Intact skin is a very effective barrier to paraquat. Broken skin removes the barrier and paraquat

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 2 of 6

may be absorbed with effects as outlined below under "Swallowed". Repeated or prolonged skin contact may lead to irritation and allergic contact dermatitis. Symptoms may include itchiness and reddening of contacted skin.

Long Term exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short term exposure: Exposure via eyes is considered to be unlikely. Product is an eye irritant although symptoms may be delayed. May lead to ulceration of corneal and conjunctival epithelium giving rise to secondary infection. Loss of corneal and conjunctival epithelium and even mild iritis can occur with the risk of secondary infection and consequent residual corneal scarring. Corneal oedema may persist for up to 3-4 weeks with temporary blurring of vision.

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. Available data shows that this product is toxic. Moderate to severe poisoning occurs at 20 – 30 mg paraquat ion/kg body weight and the effects are vomiting, abdominal discomfort, soreness and inflammation of the mouth, throat and oesophagus, difficulty in swallowing and, later, diarrhoea. Ulceration of lips, mouth, throat and intestine may follow within 24 – 48 hours. This product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat.

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

Ingredients	CAS No	Conc,%	TWA (mg/m ³)	STEL (mg/m ³)
Paraquat dichloride	1910-42-5	135g/L	not set	not set
Diaqua dermoid	85-00-7	115g/L	0.5 not set	
Emulsifiers		10-29	not set	not set
Other non hazardous ingredients	secret	<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.

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: If inhalation occurs, contact a Poisons Information Centre. Urgent hospital treatment is likely to be needed. 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. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact: Flush contaminated area with lukewarm, gently flowing water for at least 20-30 minutes, by the clock. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting (show paramedics this MSDS and take their advice). Under running water, remove contaminated clothing, shoes and leather goods (eg watchbands and belts). If breathing has stopped, trained

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 3 of 6

personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately.

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately.

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.

ADVICE TO DOCTOR: Rapid treatment is essential. Refer to "Paraquat Poisoning. A Practical Guide to Diagnosis, First Aid and Hospital Treatment" (2003 or later edition) – available at most major treatment hospitals, and Poisons Information Centres. Treatment: Wash out stomach and test urine and gastric aspirate (if clear) for presence of paraquat. Give up to 1 litre of 15% aqueous suspension of Fuller's Earth orally or via gastric tube, together with a suitable purgative (200 mL of an aqueous solution of mannitol). Repeat administration of absorbent plus purgative until absorbent is seen in stools. This should normally take between 4 and 6 hours after the start of treatment. Do not use supplemental oxygen. With the possibility of late onset conjunctival ulceration it is advised that patients with paraquat eye injuries are reviewed the day after first presentation. At the review, consideration should be given to treating the eyes with a local antibiotic preparation to prevent secondary infection. Local treatment with a suitable steroid will aid resolution of granulation tissue. Corneal oedema, which may persist for up to 3 – 4 weeks, may cause blurring of vision.

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.

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.

Section 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,

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 4 of 6

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.

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: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule 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 "Incompatibilities" in Section 10. If you keep more than 1000kg or 1000L of Toxic Substances of Packaging Group III, you are probably required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your Dangerous Goods authority in order to clarify your obligations. 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:

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/m ³)	STEL (mg/m ³)
Diquat dibromide	0.5	not set

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

The ADI for Diquat dibromide is set at 0.002mg/kg/day. The corresponding NOEL is set at 0.25mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2004.

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: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended 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 materials: rubber, PVC.

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 this product is being used.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Dark green/blue liquid.
Odour:	Characteristic unpleasant pyridine odour.
Boiling Point:	Approximately 100°C at 100kPa.
Freezing/Melting Point:	Approximately 0°C.

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 5 of 6

Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	Approx 1.16 at 20°C
Water Solubility:	Completely soluble in water.
pH:	Typically 5-6.5 (1% solution)
Volatility:	No data.
Odour Threshold:	No data.
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: This product should be kept in a cool place, preferably below 30°C. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: No particular Incompatibilities.

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, bromine compounds. 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: 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
Kidney and liver damage may appear 1 – 3 days after exposure.

Section 12 - Ecological Information

Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Paraquat Dichloride:

Birds: LD ₅₀ hen: 262-380mg/kg	LD ₅₀ bobwhite quail: 981mg/kg
LD ₅₀ Japanese quail: 970mg/kg	LD ₅₀ mallard duck: 4048mg/kg
Fish: LC ₅₀ rainbow trout: 32mg/L	LC ₅₀ brown trout: 2.15-13mg/L

Environmental fate:

Animals: In rats, following oral administration, 76-90% of the dose was excreted in the faeces, and 11-20% in urine.

Plants: On plant surfaces, photochemical degradation occurs. Degradation products which have been isolated include 1-methyl-4-carboxypyridinium chloride and methylamine hydrochloride.

Soil/environment: Clays and organic materials rapidly and strongly absorb paraquat, resulting in complete deactivation. Typical strong absorption capacities vary from 20-3000mg/kg soil depending on clay or organic material content. Desorption requires digestion with 12N sulfuric acid for several hours.

Section 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.

Section 14 - Transport Information

ADG Code: 3016, BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC

Hazchem Code: 2X

MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Di-Par 250 Herbicide

This revision issued: September, 2010

Page: 6 of 6

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)

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are to be found in the public AICS Database.

The following ingredients: Paraquat dichloride, Diquat dibromide, are mentioned in the SUSMP.

Section 16 - Other Information

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

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition
AICS	Australian Inventory of Chemical Substances
CAS number	Chemical Abstracts Service Registry Number
Hazchem Number	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
SWA	Safe Work Australia, formerly ASCC and NOHSC
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

THIS MSDS 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 MUST REVIEW THIS MSDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This MSDS is prepared in accord with the SWA document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]

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