

# MATERIAL SAFETY DATA SHEET

Product Name: Genfarm Diclofop-Methyl 375 Selective Herbicide

This revision issued: August, 2005

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## Section 1 - Identification Of Chemical Product And Company

Genfarm Crop Protection Pty Ltd  
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**Substance:** Active ingredient is an aryloxyphenoxy propionic acid derivative.  
**Trade Name:** Genfarm Diclofop-Methyl 375 Selective Herbicide  
**Product Use:** Agricultural insecticide for use as described on the product label.  
**Creation Date:** December, 2004  
**Revision Date:** August, 2005

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

This product is classified as: Hazardous according to the criteria of NOHSC Australia.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

**Risk Phrases:** R22, R36, R65, R66. Harmful if swallowed. Irritating to eyes. Harmful: May cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking.

**Safety Phrases:** S2, S20, S46, S24/25, S36/37. Keep out of reach of children. When using, do not eat or drink. If swallowed, contact a doctor or Poisons Information Centre immediately and show this container or label. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves.

**SUSDP Classification:** S6

**ADG Classification:** None allocated. Not a Dangerous Good.

**UN Number:** None allocated

### Emergency Overview

**Physical Description & colour:** Light brown to dark brown liquid.

**Odour:** Aromatic hydrocarbon odour.

**Major Health Hazards:** Harmful if swallowed, eye irritant, if aspirated, may cause lung damage.

### Potential Health Effects

See section 11 for long term health related details.

#### Inhalation

**Short term exposure:** Significant inhalation exposure is considered to be unlikely. Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.

#### Skin Contact:

**Short term exposure:** Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition product is unlikely to cause any discomfort in normal use. However, may cause cracking and defatting on lengthy exposure.

#### Eye Contact:

**Short term exposure:** Exposure via eyes is considered to be unlikely. This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.

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## Ingestion:

**Short term exposure:** Significant oral exposure is considered to be unlikely. Because of the low viscosity of this product, it may directly enter the lungs if swallowed, or if subsequently vomited. Once in the lungs, it is very difficult to remove and can cause severe injury or death.

## Carcinogen Status:

**NOHSC:** No significant ingredient is classified as carcinogenic by NOHSC.

**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 <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Diclofop-methyl	51338-27-3	360-390g/L	not set	not set
Liquid hydrocarbon solvent		500 - 550g/L	not set	not set
Other non hazardous ingredients		to 1L	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:** First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**Skin Contact:** No specific health data is available for this product. If any unusual symptoms become evident, or if in doubt, wash skin with water and contact a Poisons Information Centre or a doctor.

**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, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

## Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** This product is classified as a C1 combustible product. There is a slight risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

**Extinguishing Media:** Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade.

**Flash point:** >65°C

**Upper Flammability Limit:** No data.

**Lower Flammability Limit:** No data.

**Autoignition temperature:** No data.

**Flammability Class:** C1

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## Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Immediately call the Fire Brigade. Wear full protective clothing including eye/face protection. All skin areas should be covered. 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 glasses and, preferably, 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. 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.

## 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:** Note that this product is combustible and therefore, for Storage, may meet the definition of Dangerous Goods in some states. If you store large quantities (tonnes) of such products, we suggest that you consult your state's Dangerous Goods laws in order to clarify your obligations regarding their storage.

Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. 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**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

### Exposure Limits

TWA (mg/m<sup>3</sup>)

STEL (mg/m<sup>3</sup>)

Exposure limits have not been established by NOHSC for any of the significant ingredients in this product.

The ADI for Diclofop-methyl 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 2003.

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 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:** The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

**Protective Material Types:** We suggest that protective clothing be made from the following materials: rubber, PVC.

**Respirator:** Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

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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:

<b>Physical Description &amp; colour:</b>	Light brown to dark brown liquid.
<b>Odour:</b>	Aromatic hydrocarbon odour.
<b>Boiling Point:</b>	Above 170°C at 100kPa
<b>Freezing/Melting Point:</b>	No specific data. Liquid at normal temperatures.
<b>Volatiles:</b>	No specific data. Expected to be low at 100°C.
<b>Vapour Pressure:</b>	No data.
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	1.027
<b>Water Solubility:</b>	Emulsifiable.
<b>pH:</b>	No data.
<b>Volatility:</b>	No data.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Coeff Oil/water distribution:</b>	No data
<b>Autoignition temp:</b>	No data.

## 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:** Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

**Incompatibilities:** strong oxidising agents.

**Fire Decomposition:** Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. 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 will not undergo polymerisation reactions.

## Section 11 - Toxicological Information

**Toxicity: Acute Toxicity:** The acute oral LD<sub>50</sub> of Diclofop-methyl for rats ranged between 563-693 mg/kg (in sesame oil). The acute dermal LD<sub>50</sub> for female rats was greater than 2,000 mg/kg. The no effect level (NEL) for a 90-day feeding to rats was 12.5 mg/kg and 8 mg/kg for a 15-month feeding to dogs. The acute percutaneous LD<sub>50</sub> for rats was greater than 5,000 mg/kg. The acute inhalation toxicity for rats exposed to technical Diclofop-methyl was greater than 3.83 mg/l/hour. Rats exposed to a formulated product containing Diclofop-methyl had an oral LD<sub>50</sub> value of greater than 2,000 mg/kg. The acute dermal LD<sub>50</sub> for exposure to the same product was greater than 5,000 mg/kg. The acute dermal LD<sub>50</sub> for rabbits was reported to be 640 mg/kg. A Diclofop-methyl study on rabbits indicated no skin irritation at 24, 48 and 72 hours. Eye irritation in rabbits was found to be zero at 3, 7, or 24 hours. A 10% solution produced corneal opacity in some of the animals that was completely reversible in 72 hours. The acute dermal LD<sub>50</sub> for rabbits was found to be 640 mg/kg.

**Chronic Toxicity:** In 2-year feeding trials the NEL for rats was 20 mg/kg diet. The 15 month NEL for dogs was 8 mg/kg diet. Repeated absorption of chlorinated diphenyl ethers has resulted in liver damage in animals. Reproductive Effects The NEL in a three-generation study of technical Diclofop-methyl in rats was greater than 30 ppm.

**Teratogenic Effects:** In a rat teratology study, the teratogenic No-Observable-Effect-Level (NOEL) was 100 ppm, the highest dose tested. A rabbit teratology study reported a teratogenic NOEL of 3 mg/kg/day, the highest dose tested, and a NOEL for fetotoxicity of 3.0 mg/kg/day.

**Mutagenic Effects:** Ames assay testing revealed no mutagenic effects using four bacterial strains with and without enzyme activation in dose ranges up to 5 milligrams. A micronucleus test in mice indicated no mutagenic effect in a strain with known sensitivity. In a dominant lethal assay, the NOEL was greater than 100 mg/kg. No impairment in fertility of the male mice and no difference in the number of live and dead implantations in the female animals were noted.

**Carcinogenic Effects:** No information was available.

**Organ Toxicity:** No information was available.

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**Fate in Humans and Animals:** Diclofop-methyl is metabolized in mammals via hydroxylation. Chlorophenoxy compounds are absorbed across the gut wall, lung and skin. They are not significantly stored in fat and urinary excretion is the principal route of elimination. Elimination as a conjugate is within 96 hours.

## Section 12 - Ecological Information

**Effects on Birds:** The acute oral LD<sub>50</sub> to bobwhite quail was 4,400 mg/kg; and greater than 10,000 mg/kg for Japanese quail. The eight-day dietary LC<sub>50</sub> value for coturnix quail was greater than 20,000 ppm; 13,000 ppm for bobwhite quail; and greater than 20,000 ppm for mallard ducks.

**Effects on Aquatic Organisms:** The 96-hour LC<sub>50</sub> for technical Diclofop-methyl in rainbow trout was 0.35 mg/l water. The 96-hour LC<sub>50</sub> in rainbow trout for a formulated product was 1.38 ppm; and 2.60 ppm for carp. The 48-hour LC<sub>50</sub> in the crustacean Daphnia for a formulated product was 4.03 ppm.

**Effects on Other Animals (Nontarget species):** The LD<sub>50</sub> for honeybees in a lab test of a formulated product indicated it was nontoxic at the highest dose tested; 48 kg/ha.

### ENVIRONMENTAL FATE

**Breakdown of Chemical in Soil and Groundwater:** Under aerobic conditions, Diclofop-methyl hydrolyses in a matter of days in the soil to 2-[4-(2',4'-dichlorophenoxy)phenoxy] propanoic acid which in turn is degraded relatively quickly with a half-life of 10 days in sandy soils and about 30 days in sandy clay soils. Small amounts of 4-(2,4 dichlorophenoxy)phenol are also produced. Field studies of application rates up to 3.4 kg active ingredient per hectare showed very low finite residues in soil. At harvest, small finite residues were present in the 0-7.5 cm soil level and rare small residues were present above the 15 cm level. These studies indicate that Diclofop-methyl does not leach downward or move laterally, and dissipates quickly in soil.

**Breakdown of Chemical in Surface Water:** No information was available.

**Breakdown of Chemical in Vegetation:** Diclofop-methyl is absorbed via the leaves and in damp soil there is slight absorption via the roots. The compound inhibits root growth.

## 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:** This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

## 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: Diclofop-methyl, Liquid hydrocarbon, are mentioned in the SUSDP.

## 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
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
NOHSC	National Occupational Health and Safety Commission
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSDP	Standard for the Uniform Scheduling of Drugs & 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

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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 NOHSC document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]

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