

Section 1 - Identification of Chemical Product and Company

Statement of Hazardous Nature

This product is classified as: Not classified as hazardous according to the criteria of NOHSC Australia.

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

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Substance: Fluroxypyr is an aryloxyalkanoic acid derivative.
Trade Name: Farmoz Flagship 200 Herbicide
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: March, 2003
Revision Date: November, 2003

Section 2 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Fluroxypyr methylheptyl ester	81406-37-3	30	not set	not set
Aromatic hydrocarbons	64742-94-5	58	not set	not set
Other non hazardous ingredients	secret	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 3 - Hazards Identification

Risk Phrases: Not Hazardous - No criteria found.
Safety Phrases: Not Hazardous - No criteria found.
SUSDP Classification: S5
ADG Classification: None allocated. Not a Dangerous Good.
UN Number: None allocated

Emergency Overview

Physical Description & colour: Brown to black liquid.
Odour: Mild solvent odour.
Major Health Hazards: Fluroxypyr MHE is not a skin sensitizer in guinea pigs, has no dermal irritation in rabbits, and shows mild ocular irritation in rabbits. No significant risk factors have been found for this product.

Potential Health Effects

See section 11 for Chronic exposure studies.

Inhalation

Short term exposure: 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. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.

Eye Contact:

Short term exposure: Available data shows that this product is not harmful. However product may be mildly irritating to eyes, but is unlikely to cause anything more than mild discomfort which should disappear once product is removed.

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Ingestion:

Short term exposure: This product is unlikely to cause any irritation problems in the short or long term.

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 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: Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed. If in doubt obtain medical advice.

Eye Contact: No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

Ingestion: First aid is not generally required. If in doubt, contact a Poisons Information Centre or 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 are likely to be toxic and corrosive if inhaled. Take appropriate protective measures.

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

Fire Fighting: When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

Flash point: 67°C (PMCC)

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: C1

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. 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. 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, meets the definition of Dangerous Goods in some states. We suggest you consult your state's Dangerous Goods laws in order to clarify your obligations regarding the storage of this product.

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Make sure that containers of this product are kept tightly closed. Keep containers of this product in a well ventilated area. Make sure that the product does not come into contact with substances listed under "Materials to avoid" 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/m³)	STEL (mg/m³)
Exposure limits have not been established by NOHSC for any of the significant ingredients in this product.		

The ADI for Fluroxypyr methylheptyl ester is set at 0.2mg/kg/day. The corresponding NOEL is set at 20mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2002.

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: Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.

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 handling this product.

Protective Material Types: There is no specific recommendation for any particular protective material type.

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

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Brown to black liquid.
Odour:	Mild solvent odour.
Boiling Point:	Not available.
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	135 x 10 ⁻³ mPa at 20°C (Fluroxypyr methylheptyl ester).
Vapour Density:	No data.
Specific Gravity:	0.98 at 20°C
Water Solubility:	Emulsifiable. (Active ingredient has solubility of about 1mg/L at 25°C).
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	-1.24 (pH unknown) (log P octanol/water)
Autoignition temp:	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: This product should be kept in a cool place, preferably below 30°C. Containers should be kept dry.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

Fire Decomposition: 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. Hydrogen fluoride gas and other compounds of fluorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.

Polymerisation: This product is unlikely to undergo polymerisation processes.

Section 11 - Toxicological Information

Toxicity: Acute toxicity. Fluroxypyr MHE has low acute toxicity. The rat oral LD₅₀ is >5000 mg/kg, the rabbit dermal LD₅₀ is >2000 mg/kg, and the rat inhalation LC₅₀ is >1.0 mg/l, the maximum attainable concentration. Fluroxypyr MHE is not a skin sensitizer in guinea pigs, has no dermal irritation in rabbits, and shows mild ocular irritation in rabbits.

Genotoxicity studies show a lack of genotoxicity.

Reproductive and developmental toxicity. Studies show that Fluroxypyr and Fluroxypyr MHE are not teratogenic nor will they interfere with in utero development.

Subchronic toxicity. Fluroxypyr MHE showed a NOEL of 1,000 mg/ kg/day in a 90-day rat dietary study and a 21-day rabbit dermal study. Ninety day feeding studies with Fluroxypyr showed NOELs of 80 mg/kg/day (Wistar rats), 700 mg/kg/day (Fischer 344 rats), 1342 mg/kg/day (male mice), and 1,748 mg/kg/day (female mice). In a 4-week dietary, range finding study with Fluroxypyr in dogs the NOEL was >50 mg/kg/day.

Chronic toxicity. NOELs found in chronic dietary studies are as follows: 150 mg/kg/day (dog), 300 mg/kg/day (mouse), 80 mg/kg/day (Wistar rats), 100 mg/kg/day (male Fischer 344 rats), and 500 mg/kg/day (female Fischer 344 rats).

Animal metabolism. Studies show that Fluroxypyr MHE is rapidly hydrolyzed and the fate of the hydrolysis products, Fluroxypyr and 1-methylheptanol, are independent of whether they were given as the ester or the acid. Fluroxypyr, per se, was extensively absorbed and rapidly excreted principally unchanged in the urine. 1-Methylheptanol also was rapidly absorbed and rapidly eliminated. Repeated administration of Fluroxypyr MHE was not associated with accumulation in tissues. Also, the metabolism and pharmacokinetics of methylheptanol are comparable to that of the methylheptyl portion of Fluroxypyr MHE.

Carcinogenicity. There was no evidence of carcinogenicity in an 18-month mouse feeding study and a 24-month rat feeding study at all dosages tested. The NOELs shown in the mouse and rat oncogenicity studies were 1,000 and 320 mg/ kg/day, respectively.

Section 12 - Ecological Information

This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Harmful to aquatic organisms. Not toxic: birds and bees.

Mobility Soil: Moderately mobile (Fluroxypyr)

Persistence/degradability Soil:

The product is not persistent. Half-life time (t_{1/2}): 5-9 days (Fluroxypyr), < 7 days (Fluroxypyr-meptyl)

Degradation is primarily via: microorganisms (Fluroxypyr) and hydrolysis (Fluroxypyr-meptyl)

Water: DT₅₀ = 1-3 days (Fluroxypyr-methyl)

Ecotoxicity : Fish Fluroxypyr

LC₅₀ (96 hours) rainbow trout > 100 mg/L, golden orfe > 100 mg/L , rainbow trout > 0.9 mg/L, solubility limit (Fluroxypyr-meptyl): golden orfe > 0.9 mg/L, solubility limit

Daphnia magna: EC₅₀ (48 hours) > 100 mg/L (Fluroxypyr) > 0.9 mg/L, solubility limit (Fluroxypyr-meptyl)

Green algae: EC₅₀ (96 hours) > 100 mg/L (Fluroxypyr) > 0.9 mg/L, solubility limit (Fluroxypyr-meptyl)

Birds: Bobwhite quail LD₅₀ > 2,000 mg/kg (Fluroxypyr-meptyl & Fluroxypyr)

Mallard duck LD₅₀ > 2,000 mg/kg (Fluroxypyr-meptyl & Fluroxypyr)

Bees: Oral LD₅₀ > 100 µg/bee (Fluroxypyr-meptyl), Contact LD₅₀ > 100 µg/bee (Fluroxypyr-meptyl)

Contact LD₅₀ > 25 µg/bee (Fluroxypyr)

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.

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

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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

Contact Points:

Call Farmoz on (02)9431 7800

Fax: (02)9431 7700 and ask for the technical manager.

Police and Fire Brigade:

Dial 000

Emergency contact:

1800 024 973 (24 hours)

If ineffective:

**Dial Poisons Information Centre
(13 1126 from anywhere in Australia)**

The information contained in this Material Safety Data Sheet is provided in good faith and is believed to be correct at the date hereof. However, it is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Farmoz Pty Ltd makes no representation as to the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability whatsoever, whether with respect to negligence or otherwise, for any loss or damage arising from or connection with the supply or use of the information in this Material Safety Data Sheet.

Please read all labels carefully before using product.

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