

Section 1 - Identification of Chemical Product and Company

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Substance: Fluometuron is a fluorinated urea derived herbicide ingredient.
Trade Name: Farnoz Flowable Fluometuron 500 Residual Herbicide
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: July, 2002
Revision Date: June, 2004

Section 2 - Hazards Identification

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.

Risk Phrases: Not Hazardous - No criteria found.

Safety Phrases: Not Hazardous - No criteria found.

SUSDP Classification: None allocated.

ADG Classification: None allocated. Not a Dangerous Good.

UN Number: None allocated

Emergency Overview

Physical Description & colour: White to beige coloured viscous liquid.

Odour: Mild, non-specific odour.

Major Health Hazards: Fluometuron is practically nontoxic by ingestion with a reported oral LD₅₀ of 6416 to 8900 mg/kg in rats. Via the dermal route, it is also practically nontoxic; the dermal LD₅₀ is greater than 2000 mg/kg in rats and greater than 10,000 mg/kg in rabbits. Fluometuron is a mild skin irritant and causes skin sensitization in guinea pigs. It may cause corneal opacity in test animals. It is irritating to the mucous membrane lining the skin, gastrointestinal tract, and respiratory system. The inhalation LC₅₀ in rats is greater than 2 mg/L, indicating moderate to low toxicity by this route. While there have been no reports of cases of fluometuron poisoning in humans, this herbicide is considered a mild inhibitor of cholinesterase.

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, this 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, this product is believed to be mildly irritating, but is unlikely to cause anything more than mild transient discomfort.

Eye Contact:

Short term exposure: Available data shows that this product is not harmful. In addition, this product is believed to be mildly irritating, to eyes, but is unlikely to cause anything more than mild transient discomfort.

Ingestion:

Short term exposure: This product is unlikely to cause any health 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: Fluometuron is Class 3 - unclassifiable as to carcinogenicity to humans.

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Section 3 – Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Fluometuron	2164-17-2	50	not set	not set
Propylene glycol	57-55-6	10	not set	not set
Other non hazardous ingredients	secret	<10	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 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: Blot or brush away excess chemical. 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). If irritation persists, repeat flushing and obtain medical advice.

Eye Contact: Quickly and gently blot or brush product away. Flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, or until the product is removed, while holding the eyelid(s) open. 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: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

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

This product is likely to decompose only after heating to dryness, followed by further strong heating.

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

Fire Fighting:

Flash point: No data

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: No data.

Section 6 – Accidental Release Measures

Accidental release: Minor spills do not normally need any special cleanup measures. In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including face mask, face shield and gauntlets. All skin areas should be covered. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. 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.

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: Fluometuron is practically nontoxic by ingestion with a reported oral LD₅₀ of 6416 to 8900 mg/kg in rats. Via the dermal route, it is also practically nontoxic; the dermal LD₅₀ is greater than 2000 mg/kg in rats and greater than 10,000 mg/kg in rabbits. Fluometuron is a mild skin irritant and causes skin sensitization in guinea pigs. It may cause corneal opacity in test animals. It is irritating to the mucous membrane lining the skin, gastrointestinal tract, and respiratory system. The inhalation LC₅₀ in rats is greater than 2 mg/L, indicating moderate to low toxicity by this route. While there have been no reports of cases of fluometuron poisoning in humans, this herbicide is considered a mild inhibitor of cholinesterase. Cholinesterase inhibition was observed in guinea pigs exposed by inhalation to about 0.6 mg/L for 2 hours. Examination of rats used for LD₅₀ testing revealed increased brain weight. Other symptoms of fluometuron poisoning in rats include muscular weakness, tearing or watery eyes, extreme exhaustion, and collapse.

Chronic toxicity: Rats were fed 7.5, 75, or 750 mg/kg/day for 90 days. At the highest dose, decreased body weight and congestion in the spleen, adrenals, liver, and kidneys, as well as abnormalities in red blood cells were evident. When doses of 1.5, 15 or 150 mg/kg/day were fed to puppies for 90 days, congestion of the liver, kidneys, and spleen occurred at the highest dose. No effects were seen at 15 mg/kg/day. Prolonged or repeated exposure to fluometuron may cause conjunctivitis or skin sensitization.

Reproductive effects: There were no reproductive effects due to fluometuron seen in pregnant rats given doses as high as 50 mg/kg/day during gestation, even though toxic effects in the mother were observed. Pregnant rabbits were given doses of 50, 500, or 1000 mg/kg/day by stomach tube during days 6 through 19 of gestation. An increase in the number of resorbed fetuses was found at all treatment doses. Reduction in maternal body weight and food consumption occurred at doses of 500 and 1000 mg/kg/day. The evidence indicates that fluometuron will not cause reproductive effects in humans at expected levels of exposure.

Teratogenic effects: Some secondary developmental effects were seen in the progeny of rats and rabbits receiving 100 mg/kg/day during gestation. These higher dose data indicate that teratogenic effects are not likely in humans at expected exposure levels.

Mutagenic effects: In various tests for mutagenicity and genotoxicity, fluometuron has not shown activity. These include the Ames mutagenicity assay, the Chinese hamster ovary cell culture assay for chromosome aberration, and DNA repair inhibition tests in rat liver and human fibroblast cell lines. It reportedly did show some interference with DNA synthesis in the testes of mice given a single oral dose of 2000 mg/kg. Based on these studies, fluometuron does not appear to be mutagenic.

Carcinogenic effects: Mice that were given oral doses of 87 mg/kg/day for 2 years showed evidence of liver tumors and leukemia, a condition characterized by uncontrolled growth in the number of white-blood cells. Another study showed increased liver cell tumor incidence in male mice, but carcinogenic effects were not observed in female mice or in rats of either sex. The available evidence is inconclusive, but suggests that carcinogenic effects in humans is not likely.

Organ toxicity: Target organs of fluometuron as determined in animal studies include brain, spleen, adrenals, liver, and kidneys, and red blood cells.

Fate in humans and animals: Fluometuron is absorbed only slowly into the body from the gastrointestinal tract. At 72 hours after rats were given oral doses of 50 mg/kg fluometuron, 15% of the dose was excreted in the urine and 49% was excreted unchanged in the faeces. At the same time, fluometuron or its metabolites were detected in the rats' livers, kidneys, adrenal gland, pituitary gland, red blood cells, blood plasma, and spleen, with the highest concentration found in red-blood cells.

Section 12 – Ecological Information

Effects on birds: Fluometuron is practically nontoxic to birds; the reported acute oral LD₅₀ values for fluometuron are greater than 2150 mg/kg in bobwhite quail and 2974 mg/kg in mallard ducks. The reported 5- to 8-day dietary LC₅₀ values for fluometuron were greater than 5620 ppm in bobwhite quail, 4500 ppm in mallard ducks, 3150 in ring-neck pheasant, and 4620 ppm in Japanese quail.

Effects on aquatic organisms: Fluometuron is slightly toxic to fish. The reported 96-hour LC₅₀ of technical fluometuron is 30 mg/L in rainbow trout, 48 mg/L in bluegill sunfish, 170 mg/L in carp, and 55 mg/L in catfish. In catfish, tissue concentrations in whole fish were 40 times that of the ambient water, indicating low capacity for bioaccumulation. The reported 48 hour LC₅₀ for fluometuron in Daphnia (water flea) is 54 mg/L, indicating slight toxicity to aquatic invertebrates.

Effects on other organisms: Fluometuron is relatively nontoxic to bees.

Environmental Fate:

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Breakdown in soil and groundwater: Fluometuron is moderately to highly persistent in the soil environment, with a reported field half-life of 12 to 171 days. A representative field half-life under most conditions is estimated to be 85 days. Breakdown in the soil environment occurs mainly through photodegradation, when there is little rainfall after application, and by microbial breakdown otherwise. Fluometuron is soluble in water, and poorly bound to most soils. This suggests that it would be mobile in most soils, but in field studies in California and Georgia no residues were detected below 12 inches. In addition, fluometuron was not found in groundwater during a national survey.

Breakdown in water: Fluometuron may be highly persistent in the water environment as well. The half-life of fluometuron in water is 110 to 144 weeks. It is stable at pH values ranging from 1 to 13, at 20 C. However, exposure of 10 ppm aqueous solutions of fluometuron to natural sunlight resulted in 88% decomposition in 3 days, with a half-life of 1.2 days.

Breakdown in vegetation: Fluometuron is more readily absorbed by roots from soil application than by leaves from foliar application. The addition of a surfactant or nonphytotoxic oil to spray solutions improves the absorption of fluometuron by leaves. The rate at which it is absorbed, translocated, and subsequently broken down, (or metabolized) differs with various plant species. An understanding of these differences is important in determining the tolerance or susceptibility of plants and weeds to this chemical.

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

Much of the Information in this MSDS came from Extoxnet, a Pesticide Information Project of Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University.

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

Contact Points:

Call Farnoz 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. Farnoz 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

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Sheet.

Please read all labels carefully before using product.

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