

**Section 1 - Identification of The Material and Supplier**

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Chemical nature: Fluometuron is a urea derivative.
Trade Name: **Cotoran WG Herbicide**
APVMA Code: 59454
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: **June, 2004**
This version issued: **July, 2016** and is valid for 5 years from this date.
Poisons Information Centre: Phone 13 1126 from anywhere in Australia

Section 2 - Hazards Identification**Statement of Hazardous Nature**

This product is classified as: Not classified as hazardous according to the criteria of SWA Australia.
Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

SUSMP Classification: None allocated.

ADG Classification: None allocated. Not a Dangerous Good.

UN Number: None allocated

GHS Signal word: NONE. Not hazardous.**PREVENTION**

- P102: Keep out of reach of children.
- P262: Do not get in eyes, on skin, or on clothing.
- P281: Use personal protective equipment as required.

RESPONSE

- P337: If eye irritation persists: seek medical attention.
- P352: Wash with plenty of soap and water.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P370+P378: Not combustible. Use extinguishing media suited to burning materials.

STORAGE

- P410: Protect from sunlight.
- P402+P404: Store in a dry place. Store in a closed container.
- P403+P235: Store in a well-ventilated place. Keep cool.

DISPOSAL

- P501: Dispose of contents and containers as specified on the registered label.

Emergency Overview

Physical Description & colour: Pale tan coloured granules.

Odour: Mild 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 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. no significant risk factors have been found for this product.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Fluometuron	2164-17-2	90	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

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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 SDS with you when you call.

Inhalation: No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

Skin Contact: Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.

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.

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. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. This product, if scattered, may form flammable or explosive dust clouds in air.

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: If a significant quantity of this product is involved in a fire, call the fire brigade. Do not scatter spilled material with high pressure water jets.

Flash point: Not flammable.

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. 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. 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 SDS 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 SDS 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: 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. Check packaging - there may be further storage instructions on the label.

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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/m³)** **STEL (mg/m³)**

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

The ADI for Fluometuron is set at 0.02mg/kg/day. The corresponding NOEL is set at 2mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, June 2014.

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

Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.

Skin Protection: You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling this product. See below for suitable material types.

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

Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask. Otherwise, not normally necessary.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Pale tan coloured granules.
Odour:	Mild odour.
Boiling Point:	No specific data. Expected to decompose before boiling.
Freezing/Melting Point:	Fluometuron melts about 163°C
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	Dispersible.
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
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: No particular incompatibilities.

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 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: 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

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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.

Potential Health Effects

See section 11 for Chronic exposure studies.

Inhalation

Short term exposure: Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

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 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. However product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

Ingestion:

Short term exposure: Available data shows that this product is not harmful. This product is unlikely to cause any irritation problems in the short or long term.

Carcinogen Status:

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

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

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

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:

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: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

Section 14 - Transport Information

UN Number: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this product are compliant with NICNAS regulations.

Section 16 - Other Information

This SDS 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 Code	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

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Contact Points:

Call Adama on (02)9431 7800 and ask for the technical manager.

Fax: (02)9431 7700

Police and Fire Brigade:
Emergency contact:

Dial 000
1800 024 973 (24 hours)

If ineffective:

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

THIS SDS 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 SDS 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 SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)
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