Product Name: Farmoz Duet 250 EC

Page: 1 of 5

This revision issued: August, 2002

## **Section 1 - Identification of Chemical Product and Company**

### **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.

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**Substance:** Oryzalin and Trifluralin are both 2,6-dinitroaniline derivatives.

**Trade Name:** Farmoz Duet 250 EC

**Product Use:** Agricultural herbicide for use as described on the product label.

Creation Date: August, 2002 Revision Date: August, 2002

## Section 2 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m³)	STEL (mg/m³)
Oryzalin	19044-88-3	12.5	not set	not set
Trifluralin	1582-09-8	12.5	not set	not set
Liquid hydrocarbon	secret	20	not set	not set
Non hazardous surfactant	secret	20-40	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: R65. Harmful: May cause lung damage if swallowed.

Safety Phrases: S46. If swallowed, contact a doctor or Poisons Information Centre immediately and show this

container or label.

SUSDP Classification: None allocated.

ADG Classification: None allocated. Not a Dangerous Good.

**UN Number:** None allocated

### **Emergency Overview**

Physical Description & colour: Deep red coloured liquid.

Odour: Characteristic odour.

**Major Health Hazards:** Oryzalin is practically nontoxic by ingestion, with reported oral  $LD_{50}$  values of greater than 5000 mg/kg in rats and mice, and greater than 1000 mg/kg in cats, dogs, and chickens. The dermal  $LD_{50}$  for technical Oryzalin in rabbits is greater than 2000 mg/kg, indicating slight to practically no toxicity by this route. It is reported to cause slight skin and eye irritation in the rabbit, and no skin sensitization in the guinea pig.

Trifluralin has a similar toxicity profile.

### **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.

Issued by: Farmoz Pty Ltd

Product Name: Farmoz Duet 250 EC

Page: 2 of 5

This revision issued: August, 2002

### **Skin Contact:**

**Short term exposure:** Available data indicates that this product is not harmful. It should present no hazards in normal use. However 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. However product is believed to be mildly irritating, to eyes, but is unlikely to cause anything more than mild transient discomfort.

### Ingestion:

**Short term exposure:** 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. This product is unlikely to cause any other problems in the short term.

### **Carcinogen Status:**

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

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

IARC: Trifluralin is Class 3 - unclassifiable as to carcinogenicity to humans.

## 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 until the product is removed or until irritation has ceased, while holding the eyelid(s) open. 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.

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:

Flash point: Not flammable.

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. 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. Avoid using sawdust or other combustible material. 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

Product Name: Farmoz Duet 250 EC Page: 3 of 5

This revision issued: August, 2002

nosal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or resuse

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 his 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.

Keep away from combustible materials. 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 Oryzalin is set at 0.1mg/kg/day. The corresponding NOEL is set at 12mg/kg/day.

The ADI for Trifluralin is set at 0.02mg/kg/day. The corresponding NOEL is set at 2.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, January 2001.

**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:** 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.

# **Section 9 - Physical and Chemical Properties:**

**Physical Description & colour**: Deep red coloured liquid. **Odour:** Characteristic 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: No data. Vapour Density: No data.

**Specific Gravity:** 1.07 approx at 20°C

Water Solubility: Emulsifiable.
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.

Product Name: Farmoz Duet 250 EC

Page: 4 of 5

This revision issued: August, 2002

Phone: (02)9363 6311

**Conditions to Avoid:** Keep away from sources of sparks or ignition.

**Incompatibilities:** 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. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. 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: Oryzalin is practically nontoxic by ingestion, with reported oral  $LD_{50}$  values of greater than 5000 mg/kg in rats and mice, and greater than 1000 mg/kg in cats, dogs, and chickens. The dermal  $LD_{50}$  for technical Oryzalin in rabbits is greater than 2000 mg/kg, indicating slight to practically no toxicity by this route. It is reported to cause slight skin and eye irritation in the rabbit, and no skin sensitization in the guinea pig. It is also slightly toxic when inhaled, with a 4-hour inhalation  $LC_{50}$  of greater than 3 mg/L in rats. Formulated products may show moderate toxicity by either the oral or inhalation routes, and may show skin and eye irritation and skin sensitization properties. In dogs and cats, large oral doses cause nausea and vomiting.

**Chronic toxicity:** Rats fed a dietary level of about 2.5 mg/kg/day for 2 years exhibited blood changes, increased liver and kidney weights, inhibition of growth, and decreased survival. Repeated ingestion of large doses led to adverse changes in blood cell formation in dogs. Mice given dietary doses of about 200 mg/kg/day for 1 year exhibited decreased uterine and ovarian weights. Those exposed to doses of 75 mg/kg/day showed no observable effects. **Reproductive effects:** There were no adverse effects on reproduction in a three-generation study of rats fed dietary concentrations of 12.5, 37.5, or 112.5 mg/kg/day, the highest dose tested. foetotoxic effects appeared at 12.5 mg/kg/day. It does not appear that Oryzalin causes reproductive effects.

**Teratogenic effects:** There were no birth defects in the offspring of pregnant rats fed dietary concentrations as high as 112 mg/kg/day for three generations, nor in the offspring of pregnant rabbits given doses of 125 mg/kg/day, the highest dose tested. It appears that Oryzalin is unlikely to cause teratogenic effects.

**Mutagenic effects:** Oryzalin was not mutagenic in several tests, including tests on live rats and mice and on bacterial cell cultures. It does not appear that Oryzalin is mutagenic.

**Carcinogenic effects:** When Oryzalin was fed to rats in doses as high as 135 mg/kg/day for 2 years, there was an increase in the incidence of thyroid, mammary, and skin tumors. Thyroid tumors and benign skin and mammary tumors occurred in rats fed a dietary level of 45 mg/kg/day for 2 years. However, there were no tumors in mice fed doses as high as 548 mg/kg/day for 2 years. Because of these conflicting results, it is not possible to assess the carcinogenicity of Oryzalin.

Organ toxicity: Oryzalin has shown systemic effects on the thyroid, liver, and kidneys, as well as blood chemistry, in animal tests.

**Fate in humans and animals: Oryzalin** is moderately well-absorbed from the gastrointestinal tract, and rapidly metabolized and eliminated following absorption. When Oryzalin was administered to male rats, 40% of the dose was excreted in the urine and 40% in the faeces within 3 days. Similar results were obtained in tests with rabbits, a steer, and with Rhesus monkeys.

Trifluralin has a similar toxicity profile.

## **Section 12 – Ecological Information**

Breakdown in soil and groundwater: Oryzalin is of low to moderate persistence in the field, with reported field half-lives ranging from 20 to 128 days. A representative value for soil half-life is estimated to be 20 days. Microbial degradation is mainly responsible for the breakdown of Oryzalin in soils, but it may undergo photodecomposition near the soil surface. Volatilization is not appreciable. Oryzalin is slightly soluble in water and it does not have a strong tendency to adsorb to soil particles. It is bound to a greater extent with increasing soil organic matter and clay content. In soils with low proportions of these, high water tables and increased rainfall, Oryzalin may be mobile, and thus present a risk of contamination to groundwater.

**Breakdown in water:** No breakdown of Oryzalin by hydrolysis was observed at pH 5, 7, and 9. Based on its behavior in soil, breakdown by microbial processes is probably slow in the aquatic environment due to low levels of oxygen and low microbial activity. Photodegradation may be significant in the upper portions of the water column.

**Breakdown in vegetation:** Oryzalin is readily absorbed via the roots, and plant metabolism of Oryzalin is minimal. **Trifluralin has a similar ecological profile.** 

Product Name: Farmoz Duet 250 EC Page: 5 of 5

This revision issued: August, 2002

Phone: (02)9363 6311

# **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 Farmoz on (02)9363 3611 Fax: (02)9363 5977 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)

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Please read all labels carefully before using product.

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