

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.

Dangerous according to the Australian Dangerous Goods (ADG) Code.

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Substance: Active ingredient is a pyrethroid derivative.
Trade Name: Farmoz Alpha-Scud Elite
Product Use: Agricultural insecticide 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)
Alpha-cypermethrin	67375-30-8	10	not set	not set
Non hazardous hydrocarbon	secret	76	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: R21/22. Harmful in contact with skin and if swallowed.

Safety Phrases: S20, S24/25. When using, do not eat or drink. Avoid contact with skin and eyes.

SUSDP Classification: S6

ADG Classification: Class 9 (ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.)

UN Number: 3082

Emergency Overview

Physical Description & colour: Clear pale brown liquid.

Odour: Characteristic hydrocarbon odour.

Major Health Hazards: The onset of symptoms varies depending upon such factors as the route of absorption and quantity involved. In patients with occupational poisoning, skin symptoms usually develop within 4-6 hours after exposure, with systemic symptoms occurring as late as 48 hours after exposure. Paraesthesia of the facial skin can develop approximately 30 minutes after exposure and does not usually last beyond 24 hours when exposure is terminated. Following ingestion, the initial symptoms involve the gastrointestinal tract, developing 10-60 minutes after exposure. Patients suffering from acute oral poisoning usually develop prominent digestive symptoms such as epigastric pain, nausea and vomiting. Severely poisoned patients may have frequent convulsive attacks, coma, or pulmonary oedema. The prognosis is good if treated, with usually full recovery even in severely poisoned patients. (The hospitalisation period is usually longer than 4 weeks).

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: This product causes skin numbness but further symptoms are not available. Otherwise, product is unlikely to cause any significant discomfort in normal use.

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 harmful, but symptoms are not available. 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: 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: No specific health data is available for this product. If any unusual symptoms become evident, or if in doubt, contact a Poisons Information Centre or a doctor.

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: 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: 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. Water fog or fine spray is the preferred medium for large fires.

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

Flash point: Not flammable.

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: C1

Flammability Class: No data.

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. Because of the environmentally hazardous nature of this product, special care should be taken to restrict release to waterways or drains. 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: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. 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 Alpha-cypermethrin is set at 0.05mg/kg/day. The corresponding NOEL is set at 4.7mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values 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 dusts and vapours are minimised.

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

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

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

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.

Safety deluge showers should be provided near to where this product is being used.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Clear pale brown liquid.
Odour:	Characteristic hydrocarbon odour.
Boiling Point:	Not available.
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	No data.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	Emulsifiable.
pH:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	C1

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 oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. 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 is unlikely to undergo polymerisation processes.

Section 11 - Toxicological Information

Toxicity: Acute Toxicity: Synthetic pyrethroid compounds vary in their toxicity as do the natural pyrethrins. Inhaling high levels of pyrethrum may bring about asthmatic breathing, sneezing, nasal stuffiness, headache, nausea, incoordination, tremors, convulsions, facial flushing and swelling, and burning and itching sensations. The most severe poisonings have been reported in infants, who are not able to efficiently break down pyrethrum. The lowest lethal oral dose of pyrethrum is 750 mg/kg for children and 1,000 mg/kg for adults. Oral LD₅₀ values of pyrethrins in rats range from 200 mg/kg to greater than 2,600 mg/kg. Some of this variability is due to the variety of constituents in the formulation. Mice have a pyrethrum oral LD₅₀ of 370 mg/kg. Animals exposed to toxic amounts may experience tongue and lip numbness, nausea, and diarrhoea. Symptoms may also include incoordination, tremors, convulsions, paralysis, respiratory failure, and death. Pyrethroids can cause two quite different responses at near lethal doses in rats; aggressive sparring and a sensitivity to external stimuli progressing to tremors is the one response and pawing and burrowing behavior, and salivation leading to chronic seizures is the other. Human response to these two different types of Pyrethroids has not yet been evaluated. Recovery from serious poisoning in mammals is fairly rapid. Rats and rabbits are not affected by large dermal applications. On broken skin, pyrethrum produces irritation and sensitization, which is further aggravated by sun exposure.

Chronic Toxicity: Absorption of pyrethrum through the stomach and intestines and through the skin is slow. However, humans can absorb pyrethrum more quickly through the lungs during respiration. Response appears to depend on the pyrethrum compound used. Overall, pyrethrins and Pyrethroids are of low chronic toxicity to humans and the most common problems in humans have resulted from the allergenic properties of pyrethrum. Patch tests for allergic reaction are an important tool in determining an individuals sensitivity to these compounds. Many of the natural and synthetic compounds can produce skin irritation, itching, pricking sensations and local burning sensations. These symptoms may last for about two days.

Reproductive Effects: Rabbits that received pyrethrins orally at high doses during the sensitive period of pregnancy had normal litters. A group of rats fed very high levels of pyrethrins daily for three weeks before first mating had litters with weanling weights much lower than normal. Overall, pyrethrins appear to have low reproductive toxicity.

Teratogenic Effects: The one rabbit reproduction study performed showed no effect of pyrethrins on development of the offspring. More information is needed.

Mutagenic Effects: No information was found.

Carcinogenic Effects: No carcinogenic status has been established for pyrethrins or Pyrethroids.

Organ Toxicity: In mammals, tissue storage has not been recorded. At high doses, pyrethrum can be damaging to the central nervous system and the immune system. When the immune system is attacked by pyrethrum, allergies can be worsened. Animals fed large doses of pyrethrins may experience liver damage. Rats fed pyrethrin at high levels for two years showed no significant effect on survival, but slight, definite damage to the livers was observed. Inhalation of high doses of pyrethrum for 30 minutes each day for 31 days caused slight lung irritation in rats and dogs.

Fate in Humans and Animals: Pyrethrins, Pyrethroids, and their metabolites are not known to be stored in the body nor excreted in the milk. The urine and faeces of people given oral doses of pyrethrum contain chrysanthemic acid and other metabolites. These metabolites are less toxic to mammals than are the parent compounds. Pyrethrins I and II are excreted unchanged in the faeces. Other pyrethrum components undergo rapid destruction and detoxification in the liver and gastrointestinal tract.

Section 12 - Ecological Information

Pyrethrin is extremely toxic to aquatic life, such as bluegill and lake trout while it is slightly toxic to bird species, such as mallards. Toxicity increases with higher water temperatures and acidity. Natural pyrethrins are highly fat soluble, but are easily degraded and thus do not accumulate in the body. These compounds are toxic to bees also. Because pyrethrin-I, pyrethrin-II, and allethrin have multiple sites in their structures that can be readily attacked in biological systems, it is unlikely that they will concentrate in the food chain.

ENVIRONMENTAL FATE

Cypermethrin, breaks down in plants to produce a variety of products. Pyrethrins have little residual effect. In stored grain, 50% or more of the applied pyrethrins disappear during the first three or four months of storage. At least 80% of what remains is removed by handling, processing, and cooking. Pyrethrins alone provide limited crop protection because they are not stable. As a result, they are often combined with small amounts of antioxidants to prolong their effectiveness. Pyrethrum compounds are broken down in water to nontoxic products. Pyrethrins are inactivated and decomposed by exposure to light and air. Pyrethrins are also rapidly decomposed by mild acids and alkalis. Stored pyrethrin powders lose about 20% of their potency in one year. As the pyrethrins are purified, their stability decreases; thus, pure pyrethrin-I and pyrethrin-II are the least stable of the pyrethrins. Purified pyrethrins are very expensive and are only available for laboratory uses.

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.

MATERIAL SAFETY DATA SHEET

Section 14 - Transport Information

ADG Code: 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Hazchem Code: 2X

Special Provisions: SP179, SP274

Dangerous Goods Class: Class 9, Miscellaneous Dangerous Goods.

Packaging Group: III

Packaging Method: 3.8.9

Class 9 Miscellaneous Dangerous Goods shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 5.1 (Oxidising Agents where the Miscellaneous Dangerous Goods are Fire Risk Substances), 5.2 (Organic Peroxides where the Miscellaneous Dangerous Goods are Fire Risk Substances). They may however be loaded in the same vehicle or packed in the same freight container with Classes 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Miscellaneous Dangerous Goods are Fire Risk Substances), 5.2 (Organic Peroxides except where the Miscellaneous Dangerous Goods are Fire Risk Substances), 6 (Toxic Substances), 7 (Radioactive Substances), 8 (Corrosive Substances), Foodstuffs and foodstuff empties.

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 Sheet.

Please read all labels carefully before using product.

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MATERIAL SAFETY DATA SHEET