Material Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product trade name: 4Farmers 2,4-D Ester 600 LV
Other names:
Recommended use: Agricultural herbicide.
Company name & address: 4Farmers Pty. Ltd.
A.C.N 067 443 485
70 McDowell St, Welshpool, Western Australia, 6106.
Ph: (08) 9356 3445 Fax (08) 9356 3447
643 Murray Street, West Perth, Western Australia, 6005
Emergency telephone number: Australian Centre for Occupational Health and Safety
1800 638 556 (24 hours)

2. HAZARDS IDENTIFICATION

Hazard classification: Classified as hazardous according to the criteria of NOHSC. Non-dangerous goods.
Risk phrases: R22 Harmful if swallowed.
Safety phrases: S20/21 When using do not eat or drink/smoke
S24/25 Avoid contact with skin/eyes
S29/35 Do not empty into drains/Dispose of material and container in a safe way
SUSDP Classification: S6
ADG Classification: Not a dangerous good
UN Number: None allocated

3. COMPOSITION

Substance	CAS Number	% content (w/v)
2,4-D ethylhexyl ester	1928-43-4	90.4
Emulsifiers		≈ 10

4. FIRST AID MEASURES

Skin contact: Remove contaminated clothing. Wash contaminated skin with soapy water. If skin irritation develops, get medical attention. Wash clothing thoroughly before re-use.
Eye contact: Rinse eye(s) with clean running water for 15 mins. Get medical attention.
Ingestion: Rinse mouth. Give water to drink if patient is conscious. Induce vomiting if patient is conscious. If vomiting occurs in an unconscious patient ensure they can breathe. Give CPR if needed. Get medical attention.
Advice to doctor: Gastric lavage if there are no signs of impending convulsions.
Cautious administration of short-acting anticonvulsant drug if convulsions appear imminent.
General supportive measures for central nervous system depression.
If hypotension appears, search vigorously for a contributing cause (e.g. dehydration, electrolyte balance, acidosis, myocardial disturbances and hyperpyrexia).
As appropriate, treat dehydration, electrolyte disturbances, acidosis, and hyperpexia.
To promote excretion, initiate alkaline diuresis, as in salicylate poisoning by injecting sodium bicarbonate, intravenously, until urine pH exceeds 7.5 and then infuse mannitol; renal clearance rises sharply as urine pH rises above 7.5.
If cardiac disturbances are suspected, monitor ECG continuously if possible.
Prepare to deliver defibrillating shocks in the event of ventricular fibrillation.
If hypotension intensifies, a trial with a vasopressor drug may be appropriate.
Adrenalin (epinephrine) should be avoided because of possible fibrillation.
If myotonia appears, a trial with quinidine maybe helpful.
Physiotherapy may be necessary for motion disorders associated with peripheral neuritis, myopathy or brain stem dysfunction.
GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, 5th Ed.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide, dry chemical, foam, water fog.
Unsuitable extinguishing media: Water stream.
Special hazards in fire: Product is flammable. Combustion may release carbon dioxide, nitrogen oxides, and/or chlorine compounds.
Required special protective equipment for fire-fighters: Wear self contained breathing apparatus if in enclosed space.
Hazchem code: None allocated.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures: Wear protective equipment to prevent skin and eyes being affected.
Evacuate unprotected and unnecessary personnel from area of spill.
If material is leaking from a container, stop the leak only if this can be done safely.
Prevent spillage entering drains or watercourse.
Methods for containment & cleanup: Vermiculite, Sand, Soil is a suitable absorbent, especially soils high in clay.
Soil can be used to form bunds to contain spillage.
Contaminated soil should be collected for disposal at a suitable landfill.
Contaminated area and tools should be washed down with hypochlorite bleach.
Personal protective equipment and clothing should be washed with soapy water.

7. HANDLING AND STORAGE

Handling: Keep away from food, drink, and animal feedstuff.
KEEP OUT OF REACH OF CHILDREN.
Wear suitable Personal protective equipment when handling and spraying.
Storage: Store in the original container in a dry, cool, ventilated, LOCKED area.
DO NOT store in prolonged sunlight.
DO NOT store with food, seed, or animal feedstuff.

8. EXPOSURE CONTROLS

National exposure standards: Not established, use default of 10 mg
Engineering measures: Use assisted ventilation in enclosed spaces if needed, especially storage areas.
Personal protection equipment:
Eye/face protection: Goggles or glasses to AS 1366, AS/NZS1337
Hand/skin protection: Overalls, PVC gloves and apron, face shield
Respiratory protection: Should not be necessary under normal conditions. If spray mist may be encountered, a particulate filter to AS/NZS 1715 should be worn.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear brown liquid.
Odour: Petroleum like.
pH: Not applicable.
Vapour pressure:
Vapour density:
Boiling point/range: above 300 ^{o}C.
Melting/freezing point:
Solubility: < 0.1 ppm
Specific gravity - density: ≈ 1.15

Flashpoint:
Explosive limits (air):
Ignition temperature:
Other:

10. STABILITY AND REACTIVITY

Chemical stability: Normally stable. Will hydrolyse in contact with acidic or alkaline solutions.
Conditions to avoid:
Materials to avoid: Oxidising agents, acids and alkalies.
Hazardous decomposition products: May emit hydrogen chloride and/or chlorine oxides in fire.
Hazardous reactions: Will not polymerise or otherwise react spontaneously.

11. TOXICOLOGICAL INFORMATION

(These comments apply largely to 2,4-D acid. Esters may be slightly less damaging).
Acute toxicity: Unknown. 2,4-D acid has Oral LD_{50} for rats of 639-765 mg/kg.
Chronic toxicity: Unknown. 2,4-D has 2y NOEL for rats of 5 mg/kg.
Possible routes of exposure: Inhalation of spray mist is the most likely cause of exposure.
Range of effects. Excessive exposure may affect human health as follows:

Skin contact: May cause inflammation of the skin.
May accentuate any pre-existing dermatitis condition.
Entry into blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Toxic effects may result from skin absorption. 2,4-D esters can be absorbed through the skin of humans. Severe peripheral neuropathy may follow causing limb paralysis and loss of sensation.
Fatigue, nausea, vomiting, anorexia, diarrhoea and swelling occur, followed by "pins and needles", pain and paralysis. Disability will be on-going.

Eye contact: Can cause severe eye damage.
Corneal injury resulting from 2,4-D exposure may be slow to heal.

Inhalation/ingestion: May cause irreversible damage of organs if swallowed once.
Chlorphenoxy compounds irritate the digestive system, causing nausea and vomiting, chest pain, and diarrhoea.
Large doses can result in mineral imbalance, temperature changes, hyperventilation, low blood pressure, dilated blood vessels, damage to the heart and liver with death of white blood cells, and convulsions.
Massive doses can cause ventricular fibrillation followed by death. If death is delayed, there may be sluggishness followed by spastic changes in muscles and inco-ordination. Severe cases cause apathy, weakness in the legs, regular muscle spasms and coma.
Subacute poisonings cause severe nosebleeds, bleeding from the mouth and irritation of the eye and nose.
2,4-D in not metabolised and is excreted only slowly from the body, in the urine.
Can cause respiratory irritation.

Dose/conc./conditions likely to cause injury: Ingestion of more than 10 mls could cause acute poisoning.

Delayed effects if any: May cause asthma like symptoms, nausea, liver changes, skin eruptions, irritation of the airways and eyes, as well as nervous changes.
Suspected carcinogen/mutagenacin.
Relevant negative data:

12. ECOLOGICAL INFORMATION

Ecotoxicity:
- Aquatic organisms: Moderately toxic to fish. Emulsifiers may cause more damage than 2,4-D. Will damage some water plants.
- Flora: Damaging to most species except grasses (Poaceae).
- Fauna: Not particularly damaging to animals or birds at "drift" levels.
- Soil organisms:
- Bees: Not toxic.
- Long term:
- Ozone effects: None recorded.

Persistence/degradation: Rapidly degraded in soil.

Mobility: Adsorbs moderately to soil. With rapid degradation, leaching does not normally occur.

Bioaccumulative potential: Very low. Excreted rapidly.

13. DISPOSAL CONSIDERATIONS

Product: Whenever possible, product should be used for its intended purpose, even if reclaimed from spillage (reclaimed product must be uncontaminated). Otherwise treat as rinsings.

Containers: Whenever possible, follow directions given on container.

If not available, triple or pressure rinse plastic or metal containers before disposal. Recycle containers if possible (replace cap and return clean containers to recycler or designated collection point). Treat rinsings as for product above.

If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

Rinsings: If possible, add rinsings to spray tank and use as per product directions. If not, spray onto suitable bare ground (firebreaks etc). Otherwise drain to a chemical sump/sullage pit.

Sewage: Do not dispose of product or rinsings into sewage systems or septic tanks.

14. TRANSPORT INFORMATION

UN Number: None allocated.

UN proper shipping name: None allocated.

ADG Class & subsidiary risks: None allocated.

ADG Packing Group: None allocated.

Special precautions: Do not store with foodstuffs.

Hazchem code: S5.

4Farmers does not anticipate that this product will be shipped by air or sea, nor be exported. Extra precautions may apply if such transport is undertaken.

15. REGULATORY INFORMATION

16. OTHER INFORMATION