

# WELLFARM 2,4-D ETHYL-ESTER 680 EC HERBICIDE

**APVMA Product No:** 80105**Poison Schedule:** 6**Emergency Telephone Number:**

The Australian Poisons Information Centre: Dial 13 11 26 (from anywhere in Australia)

Specialist Advice In An Emergency Only 1800 033 111 All Hours Australia Wide

In A Transport Emergency Dial 000 Police Or Fire Brigade

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Company:** Wellfarm Pty Ltd  
**Website:** [www.wellfarm.com.au](http://www.wellfarm.com.au)  
**Email:** [info@wellfarm.com.au](mailto:info@wellfarm.com.au)  
**Postal Address:** 22 Calypso Crescent, Point Cook, Vic 3030

**Product Name:** WELLFARM 2,4-D ETHYL-ESTER 680 EC HERBICIDE  
**Product Type:** Group I Herbicide  
**Formulation Type:** Emulsifiable Concentrate  
**Chemical Type:** 2,4-D is an aryloxyalkanoic acid, present as an aliphatic ester  
**Product Use:** Agricultural Herbicide

## 2. HAZARDS IDENTIFICATION

**Statement of Hazardous Nature**

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code. However, this is a C1 Combustible Liquid and for storage meets the definition of Dangerous Goods.

**Hazards** Xn - Harmful  
**Risk Phrases** R20 - Harmful by inhalation.  
R21 - Harmful in contact with skin  
R22 - Harmful if swallowed.

**Safety Phrases** S2 - Keep out of reach of children.  
S13 - Keep away from food, drink and animal feeding stuffs.  
S20 - When using, do not eat or drink.  
S38 - In case of insufficient ventilation, wear suitable respiratory equipment.  
S24/25 - Avoid contact with skin and eyes.  
S36/37 - Wear suitable protective clothing and gloves.

**Emergency Overview****Physical Description &****Colour****Odour****Major Health Hazards**

Clear brown liquid.

Characteristic solvent odour.

The oral LD50 of 2,4-D ranges from 375 to 666 mg/kg in the rat, 370 mg/kg in mice, and from less than 320 to 1000 mg/kg in guinea pigs. The dermal LD50 values are 1500 mg/kg in rats and 1400 mg/kg in rabbits, respectively. In humans, prolonged breathing of 2,4-D causes

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coughing, burning, dizziness, and temporary loss of muscle coordination. Other symptoms of poisoning can be fatigue and weakness with possible nausea. On rare occasions following high levels of exposure, there can be inflammation of the nerve endings with muscular effects. This product is harmful by inhalation, in contact with skin, and if swallowed.

## Potential Health Effects

See section 11 for Chronic exposure studies.

<b>Inhalation</b>	Available data shows that this product is harmful, see symptoms above.
<b>Short term exposure</b>	
<b>Skin Contact</b>	Available data shows that this product is harmful, see symptoms above. However product is unlikely to cause any discomfort in normal use.
<b>Short term exposure</b>	
<b>Eye Contact</b>	This product is believed to be mildly irritating to eyes.
<b>Short term exposure</b>	
<b>Ingestion</b>	Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful, see symptoms above. This product is unlikely to cause any irritation problems in the short or long term.
<b>Short term exposure</b>	
<b>Carcinogen Status</b>	<b>SWA:</b> No significant ingredient is classified as carcinogenic by SWA. <b>NTP:</b> No significant ingredient is classified as carcinogenic by NTP. <b>IARC:</b> No significant ingredient is classified as carcinogenic by IARC.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No	Conc,%	TWA (mg/m3)	STEL (mg/m3)
2,4-D (as the 2-ethylhexyl ester)	1928-43-4	680g/L*	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

\* This figure, 680g/L is the 2,4-D equivalent (CAS 94-75-7). The ester is actually present at a higher concentration to achieve this figure.

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA 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 may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated 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.

## 4. FIRST AID MEASURES

<b>General Information</b>	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.
<b>Inhalation</b>	If symptoms of poisoning become evident, contact a Poisons Information Centre, or call a doctor at once. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.
<b>Skin Contact</b>	Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather

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<b>Eye Contact</b>	goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. 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. Take special care if exposed person is wearing contact lenses.
<b>Ingestion</b>	If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

## 5. FIRE-FIGHTING MEASURES

<b>Fire and Explosion Hazards</b>	This product is classified as a C1 combustible product. 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. 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.
<b>Extinguishing Media</b>	Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
<b>Fire Fighting</b>	If a significant quantity of this product is involved in a fire, call the fire brigade.
<b>Flash point</b>	>75°C
<b>Upper Flammability Limit</b>	No data.
<b>Lower Flammability Limit</b>	No data.
<b>Auto Ignition Temperature</b>	Approx 500°C
<b>Flammability Class</b>	C1

## 6. ACCIDENTAL RELEASE MEASURES

In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8).

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. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. 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.

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## 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 this product is combustible and therefore, for Storage, meets the definition of Dangerous Goods in some states. If you store large quantities (tonnes) of such products, we suggest that you consult your state's Dangerous Goods authority in order to clarify your obligations regarding their storage. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" 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.

## 8. EXPOSURE CONTROLS / 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**.

### 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 2,4-D 2-ethylhexyl ester is set at 0.01mg/kg/day. The corresponding NOEL is set at 1mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2005.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

### Ventilation

No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists 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 the following: rubber, PVC.

### Respirator

Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Safety deluge showers should, if practical, be provided near to where this product is being used.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance Odour

Amber to brown liquid  
Characteristic hydrocarbon solvent odour

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<b>Boiling Point</b>	190-350°C at 100kPa
<b>Freezing/Melting Point</b>	No specific data. Liquid at normal temperatures.
<b>Volatiles</b>	No specific data. Expected to be low at 100°C.
<b>Vapour Pressure</b>	$0.2 \times 10^{-6}$ kPa (2,4-D)
<b>Vapour Density</b>	No data.
<b>Specific Gravity</b>	1.11 approx
<b>Water Solubility</b>	Emulsifiable.
<b>pH</b>	No data.
<b>Volatility</b>	No data.
<b>Odour Threshold</b>	No data.
<b>Evaporation Rate</b>	No data.
<b>Coeff Oil/water Distribution</b>	No data.
<b>Autoignition temp</b>	Approx 500°C

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	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.
<b>Conditions to Avoid</b>	Protect this product from light. Store in the closed original container in a dry, cool, well ventilated area out of direct sunlight.
<b>Incompatibles</b>	strong acids, strong bases, strong oxidising agents.
<b>Fire Decomposition</b>	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 in reducing atmospheres. Hydrogen chloride gas, other compounds of chlorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.
<b>Polymerization</b>	This product will not undergo polymerization reactions.

## 11. TOXICOLOGICAL INFORMATION

<b>Toxicity:</b> An information profile for 2,4-D is available at <a href="http://extoxnet.orst.edu/pips/ghindex.html">http://extoxnet.orst.edu/pips/ghindex.html</a>	
<b>Acute toxicity</b>	The acid form of 2,4-D is classified as "harmful". The oral LD50 of 2,4-D ranges from 375 to 666 mg/kg in the rat, 370 mg/kg in mice, and from less than 320 to 1000 mg/kg in guinea pigs. The dermal LD50 values are 1500 mg/kg in rats and 1400 mg/kg in rabbits, respectively. In humans, prolonged breathing of 2,4-D causes coughing, burning, dizziness, and temporary loss of muscle coordination. Other symptoms of poisoning can be fatigue and weakness with possible nausea. On rare occasions following high levels of exposure, there can be inflammation of the nerve endings with muscular effects.
<b>Chronic toxicity</b>	Rats given high amounts, 50 mg/kg/day, of 2,4-D in the diet for 2 years showed no adverse effects. Dogs fed lower amounts in their food for 2 years died, probably because dogs do not excrete organic acids efficiently. A human given a total of 16.3 g in 32 days therapeutically, lapsed into a stupor and showed signs of incoordination, weak reflexes, and loss of bladder control.
<b>Reproductive effects</b>	High levels of 2,4-D (about 50 mg/kg/day) administered orally to pregnant rats did not cause any adverse effects on birth weights or litter size. The evidence suggests that if 2,4-D causes reproductive effects in animals, this only occurs at very high doses. Thus reproductive problems associated with 2,4-D are unlikely in humans under normal circumstances.
<b>Teratogenic effects</b>	2,4-D may cause birth defects at high doses. Rats fed 150 mg/kg/day on days 6 to 15 of pregnancy had offspring with increased skeletal

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## Mutagenic effects

abnormalities, such as delayed bone development and wavy ribs. This suggests that 2,4-D exposure is unlikely to be teratogenic in humans at expected exposure levels.

2,4-D has been very extensively tested and was found to be nonmutagenic in most systems. 2,4-D did not damage DNA in human lung cells. However, in one study, significant effects occurred in chromosomes in cultured human cells at low exposure levels. The data suggest that 2,4-D is not mutagenic or has low mutagenic potential.

## Carcinogenic effects

2,4-D fed to rats for 2 years caused an increase in malignant tumours. Female mice given a single injection of 2,4-D developed cancer (reticulum-cell sarcomas). Another study in rodents shows a low incidence of brain tumours at moderate exposure levels (45 mg/kg/day) over a lifetime. However, a number of questions have been raised about the validity of this evidence and thus about the carcinogenic potential of 2,4-D. In humans, a variety of studies give conflicting results. Several studies suggest an association of 2,4-D exposure with cancer. An increased occurrence of non-Hodgkin's lymphoma was found among a Kansas and Nebraska farm population associated with the spraying of 2,4-D. Other studies done in New Zealand, Washington, New York, Australia, and on Vietnam veterans from the U.S.A. were all negative. There remains considerable controversy about the methods used in the various studies and their results. Thus, the carcinogenic status of 2,4-D is not clear.

## Organ toxicity

Most symptoms of 2,4-D exposure disappear within a few days, but there is a report of liver dysfunction from long-term exposure.

## Fate in humans and animals

The absorption of 2,4-D is almost complete in mammals after ingestion and nearly all of the dose is excreted in the urine. The compound is readily absorbed through the skin and lungs. Men given 5 mg/kg excreted about 82% of the dose as unchanged 2,4-D. The half-life is between 10 and 20 hours in living organisms. There is no evidence that 2,4-D accumulates to significant level in mammals or in other organisms. Between 6 and 8 hours after doses of 1 mg/kg, peak concentrations of 2,4-D were found in the blood, liver, kidney, lungs, and spleen of rats. There were lower levels in muscle and brain. After 24 hours, there were no detectable tissue residues. Only traces of the compound have been found in the milk of lactating animals for 6 days following exposure.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Birds:

2,4-D is harmful to wildfowl and slightly to moderately toxic to birds. The LD50 is 1000 mg/kg in mallards, 272 mg/kg in pheasants, and 668 mg/kg in quail and pigeons.

#### Aquatic Organisms:

Some formulations of 2,4-D are highly toxic to fish while others are less so. Limited studies indicate a half-life of less than 2 days in fish and oysters. Concentrations of 10 mg/L for 85 days did not adversely affect the survival of adult dungeness crabs. For immature crabs, the 96-hour LC50 is greater than 10 mg/L, indicating that 2,4-D is only slightly toxic. Brown shrimp showed a small increase in mortality at exposures of 2 mg/L for 48 hours.

#### Other organisms:

Moderate doses of 2,4-D severely impaired honeybees brood production. At lower levels of exposure, exposed bees lived significantly longer than the controls. The honeybee LD50 is 0.0115 mg/bee.



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## Environmental Fate

### Breakdown in soil and groundwater:

2,4-D has low soil persistence. The half-life in soil is less than 7 days. Soil microbes are primarily responsible for its disappearance.

### Breakdown in water:

In aquatic environments, microorganisms readily degrade 2,4-D. Rates of breakdown increase with increased nutrients, sediment load, and dissolved organic carbon. Under oxygenated conditions the half-life is 1 week to several weeks.

### Breakdown in vegetation:

2,4-D interferes with normal plant growth processes. Uptake of the compound is through leaves, stems, and roots. Breakdown in plants is by a variety of biological and chemical pathways. 2,4-D is toxic to most broad leaf crops, especially cotton, tomatoes, beets, and fruit trees.

## 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.

## 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.

## 15. REGULATORY INFORMATION

**AICS:** All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredient: 2,4-D, is mentioned in the SUSDP.

## 16. OTHER INFORMATION

All information contained in this document is as accurate as possible based on information submitted by raw material suppliers. Wellfarm Pty Ltd will NOT be responsible for any damages that may result from reliance on the information contained herein.

The Australian Poisons Information Centre: Dial 13 11 26 (from anywhere in Australia).