MATERIAL SAFETY DATA SHEET

Rygel Low Volatile Ester 600Herbicide

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

Supplier: Rygel Australia Pty Ltd
ACN: 106 839 007
Street Address: 103 Ordish Road, Dandenong South, Vic 3175
Telephone: (03) 9768 2803
Facsimile: (03) 9768 2804
Emergency telephone number: National Poisons Information Centre: Phone Australia 13 11 26.

Product name: Rygel Low Volatile Ester 600 Herbicide
Product Type Group I Herbicide
Product Use: A specially formulated low volatile herbicide for selective control of various weeds in crops, pastures and non-agricultural areas as per the Directions for Use table on the label.

2. HAZARDS IDENTIFICATION

Hazard Classification
HAZARDOUS SUBSTANCE - Hazard classification according to the criteria of NOHSC.
NON-DANGEROUS GOODS - Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s) R22 Harmful if swallowed.
R43 May cause sensitisation by skin contact.
Safety Phrase(s) S13 Keep away from food, drink and animal feeding stuffs.
S2 Keep out of reach of children.
S24 Avoid contact with skin.
S37 Wear suitable gloves.
S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
Other Information Poisons Schedule S5

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterization: Liquid

Ingredients Name	CAS	Proportion
2,4-D present as the ethyl hexyl ester	1928-43-4	600 g/L
Other ingredients	0-40 %	

4. FIRST AID MEASURES

Inhalation Remove affected person to fresh air until recovered. If symptoms develop or persist, seek medical advice.
Ingestion If swallowed do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre on Australia 13 11 26. Make every effort to prevent vomit from entering the lungs by careful placement of the patient.
The above first aid instructions are mandated by the Commonwealth Department of Health and Ageing via the National Drugs and Poisons Schedule. These instructions are suitable for ingestion of spray solution and small amounts of concentrate; however, if SUBSTANTIAL AMOUNTS of the concentrate have been swallowed (more than about one tablespoon) AND if medical assistance is more preferably based on MEDICAL ADVICE if a physician can be contacted by phone.
All care must be taken to prevent vomit from being inhaled. Do not give anything by mouth to a semi-conscious or unconscious person.
Skin Remove contaminated clothing and launder before re-use. Wash affected areas thoroughly with soap and water.
Eye If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes.

Seek medical advice.
First Aid Facilities If poisoning occurs, contact a doctor or the Poisons Information Centre (Australia) on 13 11 26.
Advice to Doctor Treat symptomatically. If vomiting occurs, surfactants present may cause pulmonary pneumonitis.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water fog, foam, carbon dioxide or dry chemical.
Hazards from Combustion Products
Although material is not flammable, the concentrate is combustible. May emit toxic fumes of hydrogen chloride or phosgene if involved in fires or exposed to extreme heat.
Special Protective Equipment for fire fighters
Breathable air apparatus may have to be worn if material is involved in fires especially in confined spaces.
Other Information STOP FIRE WATER FROM ENTERING DRAINS OR WATER BODIES.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal Contain spill and absorb with clay, sand, soil or proprietary absorbent (such as vermiculite). Collect spilled material and waste in sealable open-top type containers for disposal. On-site disposal of concentrate is not acceptable.
Personal Protection For appropriate personal protective equipment (PPE), refer Section 8.
Clean-up Methods - Large Spillages
Place damaged containers in recovery bins (if available) and return to manufacturer. If large liquid spills occur, attempt to recover as much spilt material from sumps and bunded areas before absorbing remaining material into vermiculite or other absorbent.
Environmental Precautions
This product is a herbicide and spills can damage crops, pastures and desirable vegetation. Prevent from entering drains, waterways or sewers.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Do NOT contaminate dams, rivers or streams, or any other water bodies with pesticide or used containers.
Conditions for Safe Storage
Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.
Other Information Do not use on or in situations where damage to susceptible crops or plants such as cotton, tobacco, tomatoes, flowers, vines, fruit trees or other susceptible crop plants may result from direct application or drift. Always read the label and any attached leaflet before use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards
No exposure standard for this product has been set, however, an exposure standard has been set for 2,4-D acid at 10 mg/m3.
Engineering Controls
Handle in well ventilated areas, generally natural ventilation is adequate. Local exhaust ventilation may be required in confined spaces.
Personal Protective Equipment
When opening the container, preparing spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and goggles.
Hygiene Measures
After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing and safety equipment.
Requirements Concerning Special Training
NSW regulations require that people who use pesticides in their job or business must have training in the application of the materials.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Appearance	Clear brown liquid
Melting Point	-5°C
Boiling Point	>200°C (2,4-D 2EHE)
Solubility in Water	Disperses in water
Specific Gravity	1.14
Vapour Pressure	0.48 mPa @ 25°C for 2,4-D 2EHE
Octanol/Water Partition Coefficient	Kow Log P is 5.78 for 2,4-D 2EHE
Flash Point	130°C, firepoint 220°C
Flammability	Combustible liquid C2

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions.
Hazardous Reactions: Keep away from strong oxidising agents, may react violently.
Hazardous Polymerisation: Hazardous polymerisation is not possible.

11. TOXICOLOGICAL INFORMATION

Inhalation When applying the product as a spray avoid breathing in spray mist.
Ingestion Ingestion of the concentrate in relatively large amounts can result in headache, nausea, lethargy, motor weakness and incoordination.
Skin Prolonged contact with the concentrate may result in absorption of 2,4-D in harmful amounts. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis. Prolonged or repeated exposure may cause skin sensitisation.
Eye May irritate the eyes. Prolonged contact with the concentrate may cause damage to the eye.
Chronic Effects Chronic Overexposure: Repeated absorption of relatively large amounts of 2,4-D presents a risk to the liver and kidneys.
Reproductive Toxicity
Data indicates no reproductive effects.
Data indicates no teratogenic effects.
Mutagenicity: The weight of evidence indicates that 2,4-D does not present a mutagenic risk.
Carcinogenicity The weight of the evidence is that 2,4-D is not carcinogenic.
Acute Toxicity – Oral: LD50 (rat) 720 - 982 mg/kg for 2,4-D 2 ethyl hexyl ester (2EHE)
Acute Toxicity – Dermal: LD50 (rat) >2000 mg/kg for 2,4-D 2EHE
Acute Toxicity – Inhalation: LC50 (rat) (4hr) >5.4 mg/L for 2,4-D 2EHE
Eye Irritation Not an eye irritant.
Skin Irritation Mild skin irritant.
Skin Sensitisation Prolonged and repeated skin contact may result in skin sensitisation.
Other Information The Australian Acceptable Daily Intake (ADI) for 2,4-D for a human is 0.01 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 1 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Health and Ageing, 'ADI List', TGA, September 2006).

12. ECOLOGICAL INFORMATION

Effects on the Environment
The product is a marine pollutant for sea transport.
Environmental Protection
Spray drift can cause damage, read the label for more information.
Acute Toxicity – Fish
LC50 (96 hr) for inland silverside is >0.24 mg/L for 2,4-D 2EHE technical LC50 (96 hr) for bluegill sunfish is 20 mg/L.
Acute Toxicity - Daphnia
EC50 (48hr) for *Daphnia magna* is 5.2 mg/L for 2,4-D 2EHE technical.
Acute Toxicity - Algae
EC50 (120hr) for *Selenastrum capricornutum* >30 mg/L for 2,4-D 2EHE technical.

Acute Toxicity - Other Organisms
Birds: Not toxic to birds. LD50 for mallard ducks is 663 mg/kg
Bees: Not toxic to bees. LD50 >100 µg/bee.

13. DISPOSAL CONSIDERATIONS

Product Disposal On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).
Container Disposal Do not use this container for any other purpose. Triple rinse containers, add rinsate to the spray tank, then offer the container for recycling/reconditioning, or puncture top, sides and bottom and dispose of in landfill in accordance with local regulations.
drumMUSTER is the national program for the collection and recycling of empty, cleaned, non-returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMUSTER symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program.
Returnable containers: empty contents fully into application equipment. Replace cap, close all valves and return to the point of supply for refill or storage. If not recycling, puncture or shred and bury containers in local authority landfill. If no landfill is available, bury the containers below 500mm 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.

14. TRANSPORT INFORMATION

Storage and Transport	Considered non dangerous for transport by the Australian Code for the Transport of Dangerous Goods by Road and Rail.
UN Number (Sea Transport)	3082
IMO Class/Packing Group	Class 9; Packing Group III
IMO Marine Pollutant	Marine Pollutant
IMO Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 2,4-D 2 Ethyl Hexyl Ester)

15. REGULATORY INFORMATION

Poisons Schedule S5
Packaging & Labelling
CAUTION
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Hazard Category Harmful, Irritant
AICS: All of the components in this product are listed on the Australian Inventory of Chemical Substances.

16. OTHER INFORMATION

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

Contact: Peter Howat
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Fax 61 3 9768 2804

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