



HEXTAR GROUP OF COMPANIES

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Material Safety Data Sheet

SECTION 1: IDENTIFICATION OF THE CHEMICAL PRODUCT

Product Name: RANGER 600 HERBICIDE

Product Type: Group I Herbicide/ pyridine carboxylic acid derivative

Product Use: Herbicide for the control of a wide range woody weeds and melons as specified in the Directions for Use table.

SECTION 2 : HAZARD IDENTIFICATION

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. However, this is a C1 Combustible Liquid and for storage meets the definition of Dangerous Goods.

Risk Phrases: R22, R36/38. Harmful if swallowed. Irritating to eyes and skin.

Safety Phrases: S2, S13, S24/25, S46. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. If swallowed, seek medical advice immediately and show this container or label.

ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.

Marine Pollutant: None allocated.

SUSDP Classification: S5

UN Number: None allocated.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS	Proportion
Triclopyr butoxyethyl ester	64700-56-7	60%
Other non-hazardous ingredients	-	to 100%

Product name: Ranger 600 Herbicide

Issued: June 2011; Revision June 2016

Poisons Information Centre: 13 1126 from anywhere in Australia

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SECTION 4: FIRST AID MEASURES

Call The Poisons Information Centre if 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: Wash affected area gently and thoroughly with water (use non-abrasive soap if necessary) for 5 - 10 minutes or until product is removed. Remove all contaminated clothing and laundry before reuse. If irritation persists, repeat flushing and obtain medical advice and if necessary, medical treatment.

Eye Contact: Flush affected eye(s) gently and thoroughly with water for 5 - 10 minutes or until product is removed. If irritation persists and lasts for more than a few minutes, repeat flushing and obtain medical advice and if necessary, medical treatment. Take special care if exposed person is wearing contact lenses.

Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and contact a Poisons Information Centre or a doctor.

Advice to Doctor: Treatment is symptomatic.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazards: This product is classified as a C1 combustible liquid. There is no risk of an explosion from this product under normal circumstances if involved in a fire. 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.

Fire Fighting: Fire decomposition products from product may be toxic if inhaled. Take appropriate protective measures. When fighting fires wear a splash suit complete with self contained breathing apparatus (AS/NZ 1715/1716). If a significant quantity of this product is involved in a fire, contact your local fire department. Bund area with sand etc to contain runoff from entering drains.

Extinguishing Media: Use foam, carbon dioxide, dry powder or water-fog.

Flash point: 95°C

Upper Flammability Limit: No data. **Lower Flammability Limit:** No data.

Autoignition temperature: No data. **Flammability Class:** C1 – Combustible liquid.

SECTION 6: ACCIDENTAL RELEASE MEASURES

In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Otherwise, not normally necessary.

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.

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 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.

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.

Flammability: C1 – Combustible liquid.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure standards:

Exposure limits have not been established by NOHSC for any of the significant ingredients in this product.

The ADI for Triclopyr is set at 0.005mg/kg/day. The corresponding NOEL is set at 0.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. (Values taken from Australian ADI List, September 2010)

Engineering Control: 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.

Personal Protective Equipment:

Australian Standards 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**

Eye Protection: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

Skin Protection: If you believe you may have a sensitisation to this product or any of its declared ingredients, you should 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 materials: PVC, rubber.

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.

Inhalation: Where product is being sprayed and a mist could be produced a respirator should be worn. It should be fitted with a type G cartridge, suitable for agricultural chemicals.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical Description & colour: Amber coloured liquid.

Odour: Aromatic odour.

Boiling Point: >200°C.

Freezing/Melting Point: No specific data. Solid at normal temperatures.

Volatiles: No data.

Vapour Pressure: No data.

Vapour Density: No data.

Specific Gravity: 1.20.

Water Solubility: Emulsifiable.

pH: No data.

Odour Threshold: No data.

Evaporation Rate: No data.

Autoignition temp: No data.

Flash point: 95°C.

Flammability limit: No data.

Partition coefficient (octanol/water): No data.

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use as described on the label and in section 7.

Reactivity: This product may react with strong oxidizing agents.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: Strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Typical compounds produced are carbon dioxide, carbon monoxide, nitrogen compounds, nitrogen oxides, hydrogen chloride and hydrogen cyanide. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Hazard reactions: None

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicity: The oral LD₅₀ of Triclopyr in rats ranges from 630 to 729 mg/kg, and is over 2000 mg/kg for various amine and ester formulated products. The dermal LD₅₀ for the technical material in rabbits is greater than 2000 mg/kg, and greater than 4000 mg/kg for the formulations. Inhalation of Triclopyr did not affect rats, but inhalation of some of the formulations did cause nasal irritation. These data indicate Triclopyr is harmful.

Acute toxicity: The oral LD₅₀ of Triclopyr in rats ranges from 630 to 729 mg/kg, and is over 2000 mg/kg for various amine and ester formulated products. Other oral LD₅₀ values for Triclopyr are 550 mg/kg in the rabbit and 310 mg/kg in the guinea pig. The dermal LD₅₀ for the technical material in rabbits is greater than 2000 mg/kg, and greater than 4000 mg/kg for the formulations. Inhalation of Triclopyr did not affect rats, but inhalation of some of the formulations did cause nasal irritation. A similar result was seen when rabbit eyes were exposed. The technical material had only a slight effect on rabbit eyes, while some formulations caused significant eye irritation. These data indicate Triclopyr is slightly toxic.

Chronic toxicity: Rats fed diets containing between 3 and 30 mg/kg/day of Triclopyr experienced no ill effects. Male rats fed much higher doses (100 mg/kg/day) had decreased liver and body weight and increased kidney weight. Male mice also showed reduced liver weight but at 60 mg/kg/day. Monkeys fed smaller doses of Triclopyr (20 mg/kg/day) showed no adverse effects.

Reproductive effects: Triclopyr fed to rabbits on days 6 to 18 of gestation at doses of 25, 50, and 100 mg/kg/day produced no effects on maternal body weight, litter size, or foetal body weight. A three-generation study of rats at doses of 3, 10, and 30 mg/kg/day for an 8- to 10-week period prior to breeding of each generation showed no impact of Triclopyr on fertility rates. Triclopyr does not appear to cause reproductive toxicity.

Teratogenic effects: Pregnant rats given moderate to high doses of 50, 100, and 200 mg/kg/day on days 6 to 15 of gestation had offspring with mild foetotoxicity, but no birth defects. There were no teratogenic effects in rabbits treated on days 6 to 18 of gestation at dose rates of 10 and 25 mg/kg/day. These data suggest that Triclopyr is not teratogenic.

Mutagenic effects: Triclopyr is nonmutagenic in bacterial and cytogenetic assay systems. A mutagenicity study using rats was weakly positive, but a negative result was found in mice, the more sensitive species. Based on these data, Triclopyr is unlikely to be mutagenic.

Carcinogenic effects: Rats and mice fed oral doses of Triclopyr at 3 to 30 mg/kg/day for 2 years showed no carcinogenic response. Even though the mice did have a high incidence of lymph cancer, this incidence were apparently characteristic of the particular strain of mice and did not represent a dose-related effect. Based on these data, Triclopyr is unlikely to be carcinogenic.

Organ toxicity: Organs affected by exposure to Triclopyr include the kidneys and liver.

Fate in humans and animals: Data from animal studies indicate that Triclopyr is rapidly eliminated via the urine as the unchanged parent compound. At higher oral doses, some Triclopyr may be eliminated through the faeces as the absorption capacity of the intestine is exceeded. Reported half-lives for elimination of Triclopyr from mammals are 14 hours (dog) and <24 hours (monkeys). A human elimination half-life of approximately 5 hours has been suggested.

SECTION 12: ECOLOGICAL INFORMATION

Effects on birds: Triclopyr is slightly to practically nontoxic to birds. The LD₅₀ of the parent compound in the mallard duck is 1698 mg/kg, while the formulated compounds are of lower toxicity. The LC₅₀ in bobwhite quail and Japanese quail fed Triclopyr for 8 days are 2935 ppm and 3278 ppm, respectively.

Effects on aquatic organisms: The parent compound is practically nontoxic to fish. Triclopyr has a LC₅₀ (96-hour) of 117 mg/L in rainbow trout and 148 mg/L in bluegill sunfish. The compound is practically nontoxic to the aquatic invertebrate *Daphnia magna*, a water flea, with a reported LC₅₀ for the amine salt of 1170 mg/L. The ester formulation has reported 96-hour LC₅₀ values of 0.74 mg/L and 0.87 mg/L in the rainbow trout and bluegill sunfish, respectively. The compound has little if any potential to accumulate in aquatic organisms. The bioconcentration factor for Triclopyr in whole bluegill sunfish is only 1.08.

Effects on other organisms: The compound is nontoxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: In natural soil and in aquatic environments, the ester and amine salt formulations rapidly convert to the acid, which in turn is neutralised to a relatively nontoxic salt. It is effectively degraded by soil microorganisms and has a moderate persistence in soil environments. The half-life in soil ranges from 30 to 90 days, depending on soil type and environmental conditions, with an average of about 46 days. The half-life of one of the breakdown products (trichloropyridinol) in 15 soils ranged from 8 to 279 days, with 12 of the tested soils having half-lives of less than 90 days. Longer half-lives may occur in cold or arid conditions. Triclopyr is not strongly adsorbed to soil particles and has the potential to be mobile.

Breakdown in water: Triclopyr is not readily hydrolysed at pH 5 to 9. Hydrolysis of the ester and the amine salt occurs rapidly and results in formation of Triclopyr. Reported half-lives in water are 2.8 to 14.1 hours, depending on season and depth of water. The ester formulation half-life is from 12.5 to 83.4 hours. In water, the most important breakdown process is photolysis.

Breakdown in vegetation: Triclopyr is readily translocated throughout a plant after being taken up by either roots or the foliage. Cowberries contained residues of 2.4 ppm at 6 days, 0.7 to 1.1 ppm at 30 to 36 days, and 0.2 to 0.3 ppm at 92 to 98 days after application. The estimated half-life in above ground drying foliage as in a forest overstory is 2 to 3 months.

SECTION 13: DISPOSAL CONSIDERATIONS

Instructions for the disposal of this product and its containers are listed on the product label.

For collection of unwanted rural chemicals, contact ChemClear @1800 008 182 www.chemclear.com.au and for help with the disposal of empty drums, contact DrumMuster@ www.drummuster.com.au for local and State contacts.

SECTION 14: TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT: Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG) for transport by Road and Rail.

MARINE TRANSPORT: Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

UN Number: None allocated.

Class: None allocated.

Packing group: None allocated.

SECTION 15: REGULATORY INFORMATION

SUSDP: Schedule 6; POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING

ADG Classification: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

AICS (Australia): All of the significant ingredients in this formulation are compliant with NICNAS regulations.

APVMA Registration Number: 64049

SECTION 16: OTHER INFORMATION

This MSDS contains only safety-related information sourced from the public domain and analytical results on this product:

Acronyms:

ADG Code Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition

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 for fire fighters

IARC International Agency for Research on Cancer

ASCC Office of the Australian Safety and Compensation Council

NTP National Toxicology Program (USA)

R-Phrase Risk Phrase

SUSDP Standard for the Uniform Scheduling of Drugs & Poisons

UN Number United Nations Number

Police and Fire Brigade: Dial 000 **Poisons Information Centre (13 1126)**

Emergency contact: 04 0214 9346 (24 hours)

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