



HEXTAR GROUP OF COMPANIES

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Material Safety Data Sheet

SECTION 1: IDENTIFICATION OF THE CHEMICAL PRODUCT

Product Name: CONTENDER 480 SELECTIVE HERBICIDE

Product Type: Group D Herbicide/ 2,6 – dinitroaniline derivative

Product Use: Pre-emergence herbicide for the control of annual grasses and certain broadleaf weeds in horticultural and agricultural crops as listed in the Directions for Use.

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.

Risk Phrases: R22, R43, R36/38. Harmful if swallowed. May cause sensitisation by skin contact. Irritating to eyes and skin.

Safety Phrases: S20, S28, S24/25. When using, do not eat or drink. After contact with skin, wash immediately with plenty of soap and water. Avoid contact with skin and eyes.

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

Marine Pollutant: This product is a marine pollutant and is highly toxic to aquatic organisms.

SUSDP Classification: S5

UN Number: 3082 (only applicable to bulk shipments).

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS	Proportion
Trifluralin	1582-09-8	48.9%
Liquid hydrocarbon	-	46.0%
Other non-hazardous ingredients	-	to 100%

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: If poisoning occurs, contact a Poisons Information Centre, or call a doctor at once. Quickly and gently, blot away excess chemical. Wash affected area gently and thoroughly with water (use non-abrasive soap if necessary) for 20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and other accessories (e.g. watchbands and belts). Completely decontaminate clothing before reuse or discard. If irritation persists, repeat flushing and obtain medical advice and if necessary, medical treatment.

Eye Contact: If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for at least 5 minutes or until the product is removed. Do not allow the contaminated water to contact the unaffected eye or skin area. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. 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: Classified as a C1 combustible product. There is a risk of an explosion from this product if large quantities are involved in a fire. Vapours from this product are heavier than air and may accumulate in sumps, pits and low-lying areas which may form a potentially explosive hazard. This may also cause flash back some distance.

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) Avoid fog directly onto containers due to boilover. Bund area with sand etc to contain runoff from entering drains.

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

Flash point: Combustible but does not meet the definition of a "flammable liquid".

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

Autoignition temperature: No data. **Flammability Class:** C1.

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. 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). 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: This product is combustible and therefore, for Storage, may meet 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 laws 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 product.

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 Trifluralin is set at 0.02mg/kg/day. The corresponding NOEL is set at 2.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2003.

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: Yellowish-orange coloured liquid.

Odour: Hydrocarbon odour.

Boiling Point: 200°C (0.5kPa)

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

Volatiles: No data.

Vapour Pressure: 13.7 mPa @ 25 °C for trifluralin, 0.5 kPa @ 38°C for solvent

Vapour Density: No data.

Specific Gravity: 1.081 at 25°C

Water Solubility: Emulsifies in water.

pH: No data.

Odour Threshold: No data.

Evaporation Rate: No data.

Autoignition temp: No data.

Flash point: > 70°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 oxidising agents.

Fire Decomposition: Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Typical compounds produced are carbon dioxide, carbon monoxide, nitrogen compounds, nitrogen oxides, hydrogen fluoride 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

Information profile for Trifluralin is available at <http://extoxnet.orst.edu/pips/triflura.htm>

Health Effect from likely routes of exposure - Animal Toxicity data:

Acute toxicity: Pure trifluralin is practically nontoxic to test animals by oral, dermal, or inhalation routes of exposure. The oral LD50 for technical trifluralin in rats is greater than 10,000 mg/kg, in mice is greater than 5000 mg/kg, and in dogs, rabbits, and chickens, is greater than 2000 mg/kg. The dermal LD50 for technical trifluralin in rabbits is greater than 2000 mg/kg. The 1-hour inhalation LC50 for technical trifluralin in rats is greater than 2.8 mg/L. Nausea and severe gastrointestinal discomfort may occur after eating trifluralin. Trifluralin does not cause skin irritation. When applied to the eyes of rabbits, trifluralin produced slight irritation, which cleared within 7 days. Skin sensitization (allergies) may occur in some individuals. Inhalation may cause irritation of the lining of the mouth, throat, or lungs.

Chronic toxicity: Prolonged or repeated skin contact with trifluralin may cause allergic dermatitis. The administration of 25 mg/kg/day to dogs for 2 years resulted in no observed toxicity. In another study of beagle dogs, toxic effects were observed at 18.75 mg/kg/day. These included decreased red blood cell counts and increases in methemoglobin, total serum lipids, triglycerides, and cholesterol. Trifluralin has been shown to cause liver and kidney damage in other studies of chronic oral exposure in animals.

Reproductive effects: The reproductive capacity of rats fed dietary concentrations of trifluralin as high as 10 mg/kg/day was unimpaired through four successive generations. Trifluralin administered to pregnant rabbits at doses as high as 100 mg/kg/day, and to rats at doses as high as 225 mg/kg/day, produced no adverse effect on either the mothers or offspring. Loss of appetite and weight loss followed by miscarriages were observed when pregnant rabbits were fed high doses of 224 or 500 mg/kg/day. Fetal weight decreased and there was an increase in the number of fetal runts at the 500 mg/kg/day dosage. It is unlikely effects on reproduction will be produced in humans at expected exposure levels.

Teratogenic effects: No abnormalities were observed the offspring of rats fed doses as high as 10 mg/kg/day for four generations. Studies in the rat and rabbit show no evidence that trifluralin is teratogenic. The highest doses tested in these studies were 1000 mg/kg/day in rats and 500 mg/kg/day in rabbits. Trifluralin does not appear to be teratogenic.

Mutagenic effects: No evidence of mutagenicity was observed when trifluralin was tested in live animals, and in assays using bacterial and mammalian cell cultures.

Carcinogenic effects: In a 2-year study of rats fed 325 mg/kg/day, the highest dose tested, malignant tumors developed in the kidneys, bladder, and thyroid. However, more data are needed to characterize its carcinogenicity.

Organ toxicity: Liver, kidney, and thyroid damage appear to be the main toxic effects in chronic animal studies.

SECTION 12: ECOLOGICAL INFORMATION

Effects on birds: Trifluralin is practically nontoxic to birds. The LD50 in bobwhite quail is greater than 2000 mg/kg, as it is in female mallards and pheasants. These values are for the technical product.

Effects on aquatic organisms: Trifluralin is very highly toxic to fish and other aquatic organisms. The 96-hour LC50 is 0.02 to 0.06 mg/L in rainbow trout, and 0.05 to 0.07 mg/L in bluegill sunfish. The 96-hour LC50 in channel catfish is approximately 1.4 to 3.4 mg/L. Variables such as temperature, pH, life stage, or size may affect the toxicity of the compound. Trifluralin is highly toxic to Daphnia, a species of small freshwater crustacean, with a 48-hour LC50 of 0.5 to 0.6 mg/L. The compound shows a moderate tendency to accumulate in aquatic organisms.

Effects on other organisms: At exposure levels well above permissible application rates (100 mg/kg), trifluralin has been shown to be toxic to earthworms. However, permitted application rates will result in soil residues of approximately 1 ppm trifluralin, a level that had no adverse effects on earthworms. It is nontoxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: Trifluralin is of moderate to high persistence in the soil environment, depending on conditions. Trifluralin is subject to degradation by soil microorganisms. Trifluralin remaining on the soil surface after application may be decomposed by UV light or may volatilize. Reported half-lives of trifluralin in the soil vary from 45 to 60 days to 6 to 8 months. After 6 months to 1 year, 80 to 90% of its activity will be gone. It is strongly adsorbed on soils and nearly insoluble in water. Because adsorption is highest in soils high in organic matter or clay content and adsorbed herbicide is inactive, higher application rates may be required for effective weed control on such soils. Trifluralin has been detected in nearly 1% of the 5590 wells tested. However, it has been detected at very low concentrations, typically ranging from 0.002 ug/L to 15 ug/L.

Breakdown in water: Trifluralin is nearly insoluble in water. It will probably be found adsorbed to soil sediments and particulates in the water column.

Breakdown in vegetation: Trifluralin inhibits the growth of roots and shoots when it is absorbed by newly germinated weed seedlings. Trifluralin residues in crop plants will occur only in root tissues which are in direct contact with contaminated soil. Trifluralin is not translocated into the leaves, seeds, or fruit of most plants. On most crops, trifluralin applied to the leaves has no effect, but on certain crops, such as tobacco and summer squash, leaf distortion may occur.

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: Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

UN Number: 3082

Class: 9 Miscellaneous Dangerous Goods

Packing group: 3

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CONTAINS TRIFLURALIN)

SECTION 15: REGULATORY INFORMATION

SUSDP: Schedule 5; CAUTION 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: 64137

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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