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SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1. Product identifiers

Product name : Sanonda Herbicide Trifluralin 480 EC
Active ingredient : Trifluralin
Product code : 7101

1.2. Other means of identification

IUPAC name: α,α,α -trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine

1.3. Recommended use of the chemical and restrictions on use

A pre-emergence herbicide for the control of annual grasses and certain broadleaf weeds in certain horticultural and agricultural crops as listed in the Directions for Use Table.

1.4. Details of the supplier of the safety data sheet

Sanonda (Australia) Pty Ltd (ABN 23 059 813 973)

Address: Suite 822, St Kilda Road Towers, No. 1 Queens Road, Melbourne,
Victoria 3004 Australia.

TEL: +61 3 9863 8081

FAX: +61 3 9863 8083

email@sanonda.com

1.4. Emergency telephone number

Emergency number : +61 3 9863 8081

SECTION 2: Hazards identification

2.1. GHS classification of the substance or mixture

Skin sensitization : Category 1
Carcinogenicity : Category 2
Skin corrosion/irritation : Category 2
Eye damage/irritation : Category 2B
Hazardous to the aquatic environment (acute) : Category 1

2.2. Label elements

Signal word : Warning



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Hazard statements (CLP)

: H317 - May cause an allergic skin reaction.

H351 - Suspected of causing cancer.

H315 - Causes skin irritation.

H320 - Cause eye irritation.

H400 - Very toxic to aquatic life.

Precautionary statements

: P102 - Keep out of reach of children.

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been
Read and understood.

P210- Keep away from heat, sparks, open flames and hot
surfaces. - No smoking.

P261 - Avoid breathing fumes, mists, vapours or spray.

P262 - Do not get in eyes, on skin, or on clothing.

P264 - Wash contacted areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P272 - Contaminated work clothing should not be allowed out
of the workplace.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing and eye or
face protection.

P362 - Take off contaminated clothing and wash before reuse.

P301+P312 - IF SWALLOWED: Call a POISON CENTER or
doctor if you feel unwell.

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT
induce vomiting.

P302+P352 - IF ON SKIN: Wash with plenty of soap and
water.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water
for several minutes. Remove contact lenses, if present and easy
to do. Continue rinsing.

P308+P313 - If exposed or concerned: Get medical advice.

P333+P313 - If skin irritation or rash occurs: Get medical advice.

P337+P313 - If eye irritation persists: Get medical advice.

P370+P378 - In case of fire, use carbon dioxide, dry chemical, foam, water fog.

P405 - Store locked up.

P403+P235 - Store in a well-ventilated place. Keep cool.

P501 - Dispose of contents and containers as specified on the registered label.

Hazard pictogram

: Health Hazard Environment



SECTION 3: Composition/information on ingredients

Identity of chemical ingredients	CAS	Concentration (g/L)
Trifluralin	1582-09-8	480
Other non-hazardous ingredients	-	Balance

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (phone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to a doctor.

If inhaled

Remove affected person to fresh air until recovered. If effects persist for more than about 30 minutes, seek medical advice. Apply CPR if there is no breathing and NO pulse.

In case of skin contact

Wash affected areas thoroughly with soap and water. Remove contaminated clothing and launder before re-use.

In case of eye contact

If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes.



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If swallowed

If swallowed do NOT induce vomiting; seek medical advice immediately and show this container or label, or contact the Poisons Information Centre phone Australia 13 11 26. Make every effort to prevent vomit from entering the lungs by careful placement of the patient.

Advice to Doctor

No specific antidote. Treat symptomatically and supportively.

4.2. Most important symptoms and effects, both acute and delayed

Swallowed: Nausea and severe gastrointestinal discomfort may occur after eating Trifluralin.

Skin: Trifluralin does not cause skin irritation. Skin sensitization (allergies) may occur in some individuals.

Eye: When applied to the eyes of rabbits, Trifluralin produced slight irritation, which cleared within 7 days.

Inhaled: Inhalation may cause irritation of the lining of the mouth, throat, or lungs.

4.3. Indication of any immediate medical attention and special treatment needed

Call a physician or poison control center immediately

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam, CO₂ or dry chemical. Soft stream water fog or fine water spray if no alternatives. Contain all runoff.

5.2. Special hazards arising from the substance or mixture

If involved in a fire or heated to high temperatures will emit toxic fumes. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke.

5.3. Special protective equipment and precautions for fire fighters

Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Isolate and post spill area. Wear a PVC or rubber apron, cotton overalls buttoned to the neck and wrist and a washable hat and elbow-length PVC gloves and face shield. Large spills should be dyked or covered to prevent dispersal. Vacuum, shovel or pump spilled material into an approved container and dispose of as listed below. Keep out unprotected persons and animals.

6.2. Environmental precautions



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Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

6.3. Methods and materials for containment and cleaning up

To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure containers are kept closed until using product. When opening the container and using the prepared spray wear cotton overalls, buttoned to the neck and wrist, a washable hat, elbow length PVC gloves and face shield or goggles. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in the closed, original container in a dry well-ventilated area, out of direct sunlight. Do not store below 5°C. Extended storage below 5°C can result in the formation of crystals on the bottom of the container. If crystallisation does occur, store the container on its side at room temperature and rock occasionally until crystals re-dissolve. Ensure that any crystals that might have formed during storage are dissolved before adding to the spray tank. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters-exposure standards, biological monitoring

Exposure guidelines have not been established for this product by safe Work Australia.

8.2. Appropriate engineering controls

Use in ventilated areas only. Use local exhaust at all process locations. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

8.3. Personal Protection Equipment

General: When opening the container, preparing the spray wear a PVC or rubber apron, cotton overalls buttoned to the neck and wrist and a washable hat and elbow-length PVC gloves and face shield. Wash thoroughly before smoking, eating or using toilet facilities. Wash hands after use.



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Respiratory Protection: Generally not required. Use of a respirator may be required in certain circumstances. If an inhalation risk exists, wear a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (Australian Standards).

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- | | |
|--|--|
| a) Appearance | : Orange coloured liquid. |
| b) Odour | : Hydrocarbon odour. |
| c) Melting point/freezing point | : No specific data. Liquid at normal temperatures. |
| d) Initial boiling point and boiling range | : Not available. |
| e) Vapour pressure | : 3.85×10^{-2} mPa at 25°C. |
| f) Relative density | : Approx 1.08 at 20°C. |
| g) Flammability | : Combustible liquid (C1). |
| h) Solubility in water | : Emulsifiable in water. |

9.2. Other information

Persistent foam: 20mL maximum, after 1 min.

SECTION 10: Stability and reactivity

10.1. Reactivity

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.

10.2. Chemical stability

Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

10.3. Incompatible materials and possible hazardous reactions

strong acids, strong bases, strong oxidising agents.

Polymerisation: This product is unlikely to undergo polymerisation processes.

10.4. Conditions to avoid

This product should be kept in a cool place, preferably below 30°C. Keep away from sources of sparks or ignition. Protect this product from light.

10.5. Hazardous decomposition products



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Fire Decomposition: 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. Hydrogen fluoride gas and other compounds of fluorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.

SECTION 11: Toxicological information

11.1. Information on routes of exposure and symptoms related to exposure

Trifluralin is practically nontoxic to test animals by oral, dermal, or inhalation routes of exposure.

Swallowed: Nausea and severe gastrointestinal discomfort may occur after eating Trifluralin.

Skin: Trifluralin does not cause skin irritation. Skin sensitization (allergies) may occur in some individuals.

Eye: When applied to the eyes of rabbits, Trifluralin produced slight irritation, which cleared within 7 days.

Inhaled: Inhalation may cause irritation of the lining of the mouth, throat, or lungs.

11.2. Immediate, delayed and chronic health effects from exposure

Acute toxicity

LD ₅₀ oral rats	> 5000 mg/kg (Technical)
LD ₅₀ dermal rabbits	> 2000 mg/kg (Technical)
LC ₅₀ inhalation rats, rabbits, guinea pigs or cats	Rat (4hr) > 4.8 mg/L (air) (Technical)
Eye irritation	Mildly irritant to eyes (Technical)
Skin irritation	Non-irritant (Technical)
Skin sensitization	Classified as a potential sensitiser

Germ cell mutagenicity

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

Carcinogenicity

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

Reproductive toxicity



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The reproductive capacity of rats fed dietary concentrations of Trifluralin was unimpaired through four successive generations. Loss of appetite and weight loss followed by miscarriages were observed when pregnant rabbits were fed high doses. Foetal weight decreased and there was an increase in the number of foetal runts at the 500 mg/kg/day dosage. It is unlikely effects on reproduction will be produced in humans at expected exposure levels.

Teratogenic toxicity

No abnormalities were observed the offspring of rats fed for four generations. Studies show no evidence that Trifluralin is teratogenic.

11.3. Exposure Levels/Chronic effects

Prolonged or repeated skin contact with Trifluralin may cause allergic dermatitis. No toxicity was observed in dogs fed 25 mg/kg/day for 2 years. However, another study observed decreased red blood cell counts and increases in methaemoglobin, total serum lipids, triglycerides, and cholesterol at 18.75 mg/kg/day. Trifluralin has been shown to cause liver and kidney damage in other studies of chronic oral exposure in animals.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

LC ₅₀ fish	LC ₅₀ (96 h) for trifluralin in young rainbow trout 0.088, young bluegill sunfish 0.089 mg/l.
LC ₅₀ daphnia	LC ₅₀ (48 h) 0.245 mg/l for trifluralin.
EC ₅₀ algae	EC ₅₀ (72 h) for trifluralin in <i>Scenedesmus subspicatus</i> 12.2 mg/l. NOEC 5.37 mg/l.
Other Organisms	Birds Acute oral LD ₅₀ for trifluralin in bobwhite quail >2000 mg/kg. Dietary LC ₅₀ (5 d) for trifluralin in bobwhite quail and mallard ducks > 5000 mg/kg. Bees LD ₅₀ (oral and contact) >100 µg/bee for trifluralin. Worms LC ₅₀ (14 d) >1000 mg/kg dry soil; NOEC (reduced bodyweight) <171 mg/kg for trifluralin.

12.2. Persistence and degradability

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



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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 µg/L to 15 µg/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.

12.3. Bioaccumulative potential

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

12.4. Mobility in soil

Henry's Law Constant (H): 1.03E-04 atm*m³/mole; 25 °C Estimated.

12.5. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Safe handling and disposal methods

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®).

13.2. Disposal of any contaminated packaging

When the container is empty, shake any residual material into the spray tank. Shred and bury empty packaging in a local authority landfill. If no such landfill is available, bury the packaging 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.

13.3. Environmental regulations



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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. If recycling, replace cap and return clean containers to recycler or designated collection point. 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.

SECTION 14: Transport information

14.1. UN number

UN-No. : UN3052

14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains Trifluralin).

14.3. Transport hazard class(es)

Class (UN) : 9

Hazard labels (UN) :



14.4. Packaging group

Packing group (UN) : III

14.5. Environmental hazards

Dangerous for the environment :



IMDG Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

Wash hands and exposed skin thoroughly after handling.

Wear protective gloves, clothing, eye and face protection.

14.7. Hazchem Code

2Z



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SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Classified as a hazardous substance according to criteria of the Safe Work Australia. (Xn - harmful, Xi - irritant).

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison. This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. APVMA Approval No.: 65179/50337.

Product is not classified as a Dangerous Good according to the ADG Code (7th Ed).

Requirements concerning special training:

Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

15.2. Poisons Schedule number

This product is a Schedule 6 Poison and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 16. OTHER INFORMATION

16.1. Date of preparation or last revision of SDS

Revised 12/07/2016

Revisions Highlighted: The SDS was reviewed to include GHS requirements.

16.2. Contact Point

Sanonda (Australia) Pty Ltd

Suite 822, St Kilda Road Towers,

No.1 Queens Road, Melbourne, VIC 3004

Telephone: 03 9863 8081

Facsimile: 03 9863 8083

16.3. Key/legend to abbreviations and acronyms used in the SDS

ADG Code: Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail)

IMDG Code: International Maritime Dangerous Goods

This SDS contains only safety-related information. For other data see product literature.

All due care and skill, so far as practicable, has been applied in the preparation and collation of the information in this SDS. Each user of the Product named in this SDS should read and consider the information contained in this



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SDS in the context of how the Product will be stored, handled, used or applied in the workplace. In all circumstances, it is the responsibility of the user of the Product to ensure that they have sought out the relevant safety data appropriate to their particular situation. Nothing contained in this SDS shall be construed as a representation or recommendation to the user about the suitability or otherwise of the Product named in this SDS for the user's particular situation. If the user requires any clarification or further information, the user should contact Sanonda (Australia) Pty Ltd.

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

Please read all labels carefully before using product.