



SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

ARYSTA LifeScience South Africa (Pty) Ltd
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Substance: trifluralin.
Product Name: **TRIFLURALIN**
Product Use: Herbicide
Creation Date: December 2010
Revision Date: August 2019

24 Hr Emergency Number:

In case of Poisoning:

Poisons Helpline 0861 555 777

In case of Spillage:

Spill Tech Oil & Chemical Pollution Control 086 100 0366 / 083 253 6618

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Trifluralin
Chemical Name: α, α, α -trifluoro-2,6-dinitro-*N,N*-dipropyl-*p*-toluidine (IUPAC)
CAS No.: 1582-09-8
Chemical Family: 2,6-dinitroaniline
Chemical Formula: $C_{13}H_{16}F_3N_3O_4$
Molecular weight: 335.3

Use: Microtubule assembly inhibition.

Selective soil-herbicide, which acts by entering the seedling in the hypocotyl region. Also inhibits root development.

Trifluralin is a selective, pre-emergence dinitroaniline herbicide used to control many annual grasses and broadleaf weeds. Pre-emergence herbicide to be applied before weed seedlings sprout. Trifluralin should be incorporated into the soil by mechanical means within 24 hours of application.

Hazardous Ingredient:

<u>Inert:</u>	<u>concern:</u>	<u>% present:</u>
trifluralin	Environmental hazard	± 50 %
aromatic hydrocarbon	Irritant, Flammable	> 40 %

SYMBOLS: N, Xi

RISK-PHRASE(S): R10, R20/22, R36/38, R 43, R50/53

SECTION 3 - HAZARD IDENTIFICATION

Likely routes of exposure:

Skin contact, ingestion and inhalation.

Skin: May cause mild irritation. May cause mild sensitization to some individuals.

Eye contact: Moderate to severe eye irritant.

Ingestion: Minimally toxic. Harmful if swallowed. The solvent can be of concern if vomiting occur; aspiration of the vomit into the lungs can cause mild to severe pulmonary injury.

Inhalation: Minimally toxic. Harmful if inhaled.

Environment: Very toxic to fish and aquatic organisms.

Flammable: Flammable, Flash point: 30 °C.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Inhalation:

Remove source of contamination, or move victim to fresh air. Keep affected person warm and at rest. Treat symptomatically and supportively. If breathing is difficult, a qualified person should administer oxygen. Get medical attention immediately if effects persist.

MATERIAL SAFETY DATA SHEET

**Skin contact:**

Move the victim to fresh air and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with cold water and non-abrasive soap. Do not rub the skin. If irritation persists, obtain medical attention.

Eye contact:

Immediately flush the eyes with clean, gently flowing cold water for 20 minutes, holding the eyelid(s) open. If irritation persists, obtain medical attention.

Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting, due to aromatic solvent present in product. **Obtain medical advice immediately** and make the container, or label or this Data Sheet available.

Never give anything by mouth to a semi-conscious or unconscious person. If vomiting occurs, take care to prevent vomit from being inhaled. Establish and maintain airway. Treat respiratory difficulty with artificial respiration and oxygen.

Advice to physician:

There is no specific antidote. Treat symptomatically and supportively as and when required. If product is aspirated into the lungs during ingestion or vomiting, mild to severe pulmonary injury may be caused. The stomach should be emptied as soon as possible by careful gastric lavage. Give oxygen if respiration is depressed.

SECTION 5 - FIRE-FIGHTING MEASURES

Fire and explosion hazard: Flammable. Flash point: 30 °C

Extinguishing agents:

Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal.

Hazardous products of combustion:

If involved in a fire, products of combustion may include hydrogen fluoride, oxides of nitrogen and possibly cyanides.

Fire fighting:

Remove spectators from surrounding area. Remove container from fire area if possible without risk. Eliminate all ignition sources in immediate area. Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours, mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)**Personal precautions:**

Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. Trifluralin is very toxic to fish and aquatic organisms. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill:

Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For small liquid spills, soak up with damp earth or sand, or other non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal.

For large liquid spills, contain the liquid by damming in with absorptive material and pump into containers. Soak up remainder with absorbent material.

Label containers with its content and dispose it in accordance with local regulations. Open burning or dumping of this material is prohibited. Do not flush spilled material into drains. Keep spectators away. In situations where product comes in contact with water, contain contaminated water for disposal.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS**Handling:**

Avoid contact with eyes, prolonged contact with skin, and inhalation of spray and fumes. Handle product with caution. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide

MATERIAL SAFETY DATA SHEET



gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Operators should change and wash clothing after use. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Store in its original, labelled and closed container in dry, cool, shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Do not store with other pesticides, fertilizer, seeds, foodstuffs and water supplies. Store away from incompatible substances. Product is incompatible with galvanized steel or unlined mild steel. Keep out of reach of unauthorized persons, children and animals. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

It is usually safe to use the product without a mask or respirator. If the product is used in dusty or confined conditions, a mask or respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

Wear safety goggles or face shield.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Free flowing homogenous liquid.
Odour:	Aromatic odour.
Relative density:	1.05 ± 0.05 g/cm ³ .
Solubility in water:	Miscible.
Flash point:	30 °C
Corrosive properties:	None.

SECTION 10 - STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and storage conditions.

Storage stability:

Stable for 2 years under normal warehouse conditions. Store at temperatures below 50 °C and above 0 °C. Decomposed by ultra violet radiation.

Conditions to avoid:

Excessive heat.

Hazardous decomposition:

Products of combustion may be produced on heating.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:	calculate: 10 000 mg/kg
Acute dermal LD₅₀:	calculated: 10 000 mg/kg
Inhalation:	Technical: LC ₅₀ (4 hours): > 4,8 mg/ℓ air.

MATERIAL SAFETY DATA SHEET



Acute skin irritation: may cause mild skin irritation.

Acute eye irritation: moderate to severe eye irritant.

Skin sensitization: may cause mild sensitization.

Reproductivity:

It is unlikely effects on reproduction will be produced in humans at expected exposure levels.

Carcinogenicity:

Early experiments on animals indicated that trifluralin was carcinogenic. This has since been found to be due to an impurity, di-n-propylnitrosamine, a known carcinogen, present in crude trifluralin at about 80 to 100 ppm. Thus trifluralin itself is considered to be non-carcinogenic.

Teratogenicity:

Trifluralin does not appear to be teratogenic.

Mutagenicity:

No evidence of mutagenicity was observed.

Organ toxicity:

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

ADI: 0,024 mg/kg body weight.

SECTION 12 - ECOLOGICAL INFORMATION

Degradability:

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. Adsorption is highest in soils high in organic matter or clay content.

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

Following oral administration in animals, 70% is eliminated in the urine and 15% in the faeces within 72 hours.

ECOTOXICOLOGY:

Birds: practically non-toxic to birds.

LC₅₀: Bobwhite quail: > 2000 mg/kg

Fish: Very toxic to fish and other aquatic organisms.

LC₅₀ (96 hours): Rainbow trout: 0.02 – 0.06 mg/l

Bluegill sunfish: 0.05 – 0.07 mg/l

Has a moderate tendency to accumulate in aquatic organisms.

Algae:

EC₅₀ (7 days): *Selenastrum capricornutum*: 12.2 mg/l

Daphnia: highly toxic to Daphnia. LC₅₀ (48 hours): 0.245 mg/l

Bees: Not toxic. LD₅₀: > 100 µg/bee

Earthworms: LC₅₀ (14 days): > 1000 mg/kg dry soil.

SECTION 13 - DISPOSAL CONSIDERATION

Pesticide disposal:

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Comply with local legislation applying to waste disposal.

Container disposal:

Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

SECTION 14 - TRANSPORT INFORMATION

MATERIAL SAFETY DATA SHEET



UN NUMBER: 3082
Road Transport ADR/IRD:
 Class: 9
 Packing group: III
 Shipping name: Environmentally hazardous substance, Liquid, N.O.S. (herbicide – trifluralin 480 g/l)
Maritime Transport IMDG/IMO:
 Class: 9
 Packing group: III
 Shipping name: Environmentally hazardous substance, Liquid, N.O.S. (herbicide – trifluralin 480 g/l)

SECTION 15 - REGULATORY INFORMATION

Symbol: N, Xn
Indication: Environmentally dangerous substance, Harmful.
Risk phrases:
R 10 Flammable.
R 20/22 Harmful by inhalation and if swallowed.
R 36/38 Irritating to eyes and skin.
R 43 May cause sensitization by skin contact.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:
S 2 Keep out of reach children.
S 16 keep away from sources of ignition – No smoking.
S 24/25 Avoid contact with skin and eyes.
S 37/39 Wear gloves and eye/face protection.
S 60 This material and its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

SECTION 16 - OTHER INFORMATION

Packaging and Labelling:

Packed in 1, 2, 5, 10, 20 and 25 l fluorinated plastic containers and labelled according to South African regulations and guidelines.

Disclaimer:

The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

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