

# UNIVERSAL TRIFLURALIN 480 EC

# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT & COMPANY IDENTIFICATION

**Product Name:** TRIFLURALIN 480 EC  
 Herbicide  
**UN No.:** 1993  
**Supplier:** Universal Crop Protection (Pty) Ltd.  
**Co. Reg. No.:** 1983/008184/07  
 PO Box 801,  
 Kempton Park, 1620, South Africa  
**Telephone:** (011) 396 2233  
**Fax:** (011) 396 4666  
**Website:** [www.villacrop.co.za](http://www.villacrop.co.za)

**Emergency telephone numbers:**  
**24 Hr Transport / Spill emergency no:**  
 EnviroSure. +27 31 205 4918  
 (Hazcall24) +27 86 044 4411  
 (Client: Villa Crop Protection)  
 Griffon Poison Information Centre +27 82 446 8946  
 (Client: Villa Crop Protection)  
**Poisoning Emergency telephone numbers:**  
 Griffon Poison Information Centre +27 82 446 8946  
 Poisons Information Centre +27 861 555 777  
**Villa Crop Protection Emergency number:**  
**National Safety, Health and Environmental Manager:**  
 +27 63 698 0668

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Common Name:** Trifluralin  
**Chemical Name:**  $\alpha,\alpha,\alpha$ -trifluoro-2,6-dinitro-*N,N*-dipropyl-*p*-toluidine (IUPAC)  
**CAS No.:** 1582-09-8  
**Chemical Family:** 2,6-dinitroaniline  
**Chemical Formula:** C<sub>13</sub>H<sub>16</sub>F<sub>3</sub>N<sub>3</sub>O<sub>4</sub> (Mol. wt: 335.3)  
**Formulation:** Trifluralin: 480 g/l  
 Emusifiable concentrate  
**Use:** A pre-emergence, selective soil-herbicide.  
**Hazardous Ingredient:** Trifluralin  
**SYMBOLS:** F; N  
**RISK-PHASE(S):** R 11, R 22, R36/37, R43, R51, R65

## 3. HAZARD IDENTIFICATION

**Toxicity class:** WHO Table 5; EPA III. A low toxicity herbicide.  
**Likely routes of exposure:** Ingestion, inhalation eye contact and skin contact.  
**POTENTIAL HEALTH EFFECTS:**  
**Ingestion:** Minimally toxic. The active ingredient is of low toxicity. The solvent can be of concern if vomiting occurs;

aspiration of the vomit into the lungs can cause mild to severe pulmonary injury and possible death.  
**Eye irritation:** May cause moderate to severe irritation to the eyes. Contact with the concentrate may cause irritation and pain, but no serious damage is expected.  
**Skin irritation:** Minimally toxic. Skin absorption is unlikely to cause any toxic affects. However, in some people prolonged contact may result in skin sensitisation.  
**Inhalation:** Minimally toxic by inhalation. Irritating to respiratory system.

## 4. FIRST AID MEASURES AND PRECAUTIONS

This herbicide does not uncouple oxidative phosphorylation or generate methemoglobin.  
**Eye:** Flush eyes immediately with large amounts of gently flowing cold water or normal saline solution, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15 to 20 minutes).  
**Skin:** Remove contaminated clothing, shoes and leather goods immediately. Gently wipe of excess chemical. Wash skin gently and thoroughly with non-abrasive soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 to 20 minutes). Seek medical advice if necessary.  
**Inhaled:** Immediately remove source of contamination or move victim to fresh air. If breathing has stopped, perform artificial respiration and administer oxygen. Keep person warm and at rest. Treat symptomatically and supportively as and when required. **Seek medical advice immediately.**  
**Ingested: Do not induce vomiting.** Give plenty of milk or water and seek medical advice immediately and show the container or label. If poisoning occurs, contact a doctor or Poison Information Centre.  
**Advice to the physician:** Treat systematically. There are no specific antidotes for poisoning of this herbicide.  
**Do not induce vomiting** due to the aromatic solvent. Administer activated charcoal. Empty the stomach by intubation, aspiration and lavage, using a slurry of activated charcoal in isotonic saline. Rigorous precautions must be taken to protect the airway from aspiration of regurgitated gastric contents:  
 1. If the victim is unconscious, use a cuffed endotracheal tube prior to gastric intubation.  
 2. Keep the patient's head below level of stomach during gastric intubation and lavage (Trendelenburg, or left lateral decubitus, with head of table tipped downward). Keep victim's head turned to the left.  
 3. Aspirate pharynx as regularly as possible to remove gagged or stomach contents.  
 Supportive measures are ordinarily sufficient for successful management of excessive exposures to these herbicides.

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## 5. FIRE FIGHTING MEASURES

**Fire and explosion hazard:**

**General Hazard: FLAMMABLE.**

**Extinguishing agents:** Use dry chemical, carbon dioxide, water spray or foam alcohol-resistant foam.

**Fire fighting Instructions:**

Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire. Eliminate all ignition sources in immediate area.

Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal.

This product is a total herbicide; do not scatter the material by using high-pressure water streams. Avoid pollution of waterways. Dyke fire control water for later disposal.

Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

**Personal Protective Equipment:** Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus. Wear protective clothing and self-contained breathing apparatus.

**Hazardous Combustion Products:** If involved in a fire, products of combustion may include hydrogen fluoride, oxides of nitrogen and possibly cyanides.

## 6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

**Personal precautions:** Avoid contact with skin and eyes or clothes. Do not breathe in vapour, fumes or spray mist. Ventilate area of spill or leak, especially confined areas. For personal protection see Section 8.

**Environmental precautions:** Do not allow entering drains or watercourses. 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:** Earth all equipment used when handling the product. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Keep out unprotected persons and animals. Contain the spill and soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry, labelled container; cover and store in a safe place to await proper disposal. All contaminated cleaning materials should be placed in closable receptacles for subsequent disposal. In situations

where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Do not contaminate water while cleaning equipment or disposing of wastes. Keep spectators away and upwind. Open burning or dumping of this material is prohibited. Do not get water inside containers.

## 7. HANDLING AND STORAGE REQUIREMENTS

**Handling:** Harmful if swallowed. Avoid inhalation and contact with eyes and skin. Use with adequate ventilation. Do not handle broken containers without protective equipment. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Worker should shower at the end of each workday. Launder all clothing before it is re-used again. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Seek medical advice.

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 container in isolated, dry, cool and well-ventilated area. Keep from contact with other pesticide, fertilizers and seeds. Store away from incompatible substances. Product is incompatible with strong oxidising agents. Not to be stored next to foodstuffs and water supplies. Keep under lock and key out of reach of unauthorized persons, children and animals. Local regulations should be complied with.

Keep away from naked flames and other sources of ignition.

**Storage stability:** Considered stable for a period of 2 years in normal warehouse conditions, if kept in closed, original container.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

**Occupational exposure limits:** No exposure limits have been set for his product.

**Engineering control measures:** It is essential to provide adequate ventilation. The measures appropriate for a particular worksite 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

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protection. This concentrate may be harmful if swallowed, inhaled or absorbed. Avoid contact with skin and eyes to prevent possible irritation.

**Respirator:** An approved respirator suitable for protection from spray or mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

**Clothing:** Employee must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance. Wear long sleeved shirt, long pants, waterproof gloves and shoes plus socks.

**Eye protection:** Wear protective eyewear to prevent contact with this substance.

**Emergency eyewash:** 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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odour:** Maroon coloured liquid with aromatic odour.

**Flammability:** **Highly flammable.** (Due to xylene solvent). Not Explosive.

**Flash point:** 35°C.

**Corrosive properties:** Not corrosive.

**Specific gravity:** 1.033 g/cm<sup>3</sup>.

**Solubility in water:** The product emulsifies in water.

### 10. STABILITY AND REACTIVITY

**Stability:** The product is stable in neutral, weakly acidic and weakly alkaline media. Decomposed by ultra violet radiation.

**Storage stability:** Stable for up to 2 years under normal warehouse conditions. There is no loss of active ingredient after 14 days at 54 °C (accelerated storage test).

**Conditions to avoid:** Excessive heat.

**Hazardous decomposition:** Products of combustion may include hydrogen fluoride, oxides of nitrogen and possibly cyanides on heating.

**Hazardous polymerisation:** Material is not known to polymerise.

### 11. TOXICOLOGICAL INFORMATION

**Acute oral LD<sub>50</sub>:** 10 000 mg a.i./kg in rats.

**Acute dermal LD<sub>50</sub>:** 2 000 mg a.i./kg in rabbits.

**Eye irritation:** May cause moderate to severe irritation.

**Skin irritation:** Slightly irritating to skin due to solvent (rabbits).

**Skin sensitisation:** Prolonged contact may result in skin sensitisation in some people.

**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:** Not teratogenic.

**Mutagenicity:** Not mutagenic.

### 12. ECOLOGICAL INFORMATION

**Degradability:** Microbial degradation is the major cause of loss from soil, with liberation of carbon dioxide. The principal metabolite is aminomethylphosphonic acid. **Trifluralin** is relatively persistent in soil, though it will biodegrade. Half-life is reported to be about 45 days in soil, but longer in cool, dry areas, and can be up to 120 days.

**Mobility:** Strongly adsorbed to soil and therefore becomes practically immobile and is unlikely to leach.

**Accumulation:** The product shows little or no tendency to bio-accumulate and poses no long-term threat to wildlife.

#### ECOTOXICOLOGY:

##### Fish: Toxic to Fish.

LC<sub>50</sub> (96 h) young Rainbow trout: 0.01 to 0.04 mg/l

LC<sub>50</sub> (96 h) young Bluegill sunfish: 0.02 to 0.09 mg/l

##### Birds: Not Toxic to Birds

Acute oral LD<sub>50</sub>: Bobwhite quail > 2 000 mg/kg

5-day dietary LC<sub>50</sub>: Bobwhite quail > 5 000 mg/kg

**Bees:** LD<sub>50</sub> (oral): > 50 µg/bee

**Daphnia:** LC<sub>50</sub> (48 h) 0.56 mg/l;

**Algae:** *Selenastrum capricornutum*

LC<sub>50</sub> (7 d) 12.2 mg/l.

**Other aquatic spp.:** grass shrimp (*Palaemonetes sp.*)

LD<sub>50</sub> (96 h) 0.64 mg/l.

##### Earthworms:

LC<sub>50</sub> (14 d) > 1000 mg/kg dry soil.

### 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 should be disposed of in a landfill approved for pesticide disposal. This product is a total herbicide, do not contaminate rivers, dams or any other water sources with the product or used containers.

**Package product wastes:** Emptied containers retain vapour and product residues. Observe all labelled safeguards. **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

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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 a third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container.

Destroy the emptied containers by perforation and flattening. Bury in an approved, designated landfill. Do not re-use the empty container for any other purpose. Comply with any local legislation applying to disposal.

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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### END OF DOCUMENT

**Compiled:** October 1999  
**Reviewed:** June 2019  
**Revision no.:** (2)  
**Next revision date:** June 2024

For detailed information on revisions, contact the Registration holder.

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### 14. TRANSPORT INFORMATION

**UN NUMBER:** 1993  
**Road Transport ADR/IRD:**  
 Class: 3.3  
 Packing group: III  
 Shipping name: **Flammable liquid, N.O.S.**  
 (Trifluralin 480 g/l)

**Considered a marine pollutant.**

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### 15. REGULATORY INFORMATION

**Symbol:** F; N  
**Danger Indication:** **Flammable;** Environmentally Dangerous Substance

**Risk phrases:**

**R 11** **Flammable.**  
**R 22** Harmful if swallow.  
**R 36/37** Irritating to eyes and respiratory system.  
**R 43** May cause sensitisation by skin contact.  
**R 51** Toxic to aquatic organisms.  
**R 65** Harmful: may cause lung damage if swallowed.

**Safety phrases:**

**S 1/2** Keep locked up and out of the reach of children.  
**S 23** Do not breath vapour, spray or mist.  
**S 24/25** Avoid contact with skin and eyes.  
**S 36/37/39** Wear suitable protective clothing, gloves and eye/face protection.  
**S 62** If swallowed, do not induce vomiting: seek medical advice immediately and show this container and label.

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### 16. OTHER INFORMATION

**Packing and Labelling:** Packed in 1, 2, 5, 10, 20 & 25 litres HDPE fluorinated plastic drums and labelled according to the 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