

SECTION 1: PRODUCT IDENTIFICATION
Product Identifier: TRAXOS® TWO BROADLEAF COMPONENT

Registration Number: 31673 (Pest Control Products Act)

Product Use: Traxos® Two Broadleaf Component provides post-emergence control of a broad spectrum of broadleaf weeds including cleavers, kochia and wild buckwheat in spring wheat and durum wheat. Please refer to product label for further details.

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3
In Case of Emergency, Call
1-800-327-8633 (FAST MED)
MSDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

SECTION 2: HAZARDS IDENTIFICATION
Physical State: Liquid.

Appearance: Yellow to orange.

Odour: Mild.

Symptoms of Acute Exposure: May cause eye irritation. May be harmful if swallowed. Aspiration hazard. Can enter lungs and cause damage.

Potential Health Effects: Suspect cancer hazard (Naphthalene). May cause cancer.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. Combustion products may include and are not limited to: hydrogen chloride, carbon monoxide, carbon dioxide.

Unusual Fire, Explosion & Reactivity Hazards: Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	Average % by weight
2,4-D 2-ethylhexyl ester	1928-43-4	50.99
Fluroxypyr-Meptyl	81406-37-3	12.17
Heavy aromatic naphtha	64742-94-5	29.0
1,2,4-Trimethylbenzene	95-63-6	≥ 0.3 - ≤ 1.5
Hexanol	111-27-3	≥ 0.5 - ≤ 1.3
Naphthalene	91-20-3	≥ 0.02 - ≤ 0.4
Other Ingredients		≥ 4.64 - ≤ 7.02

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES
IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have the victim lean forward with head down to avoid breathing in of vomitus.

Most Important Symptoms/Effects, Acute and Delayed:

May cause slight eye irritation. Corneal injury is unlikely.

Skin contact may cause slight irritation with local redness.

Brief inhalation exposure (minutes) is not likely to cause adverse effects.

Low toxicity if swallowed. May result in gastrointestinal damage. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician.

Contains petroleum distillates, vomiting may cause aspiration pneumonia.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point and Method: 73.5 °C (Closed Cup).

Upper and Lower Flammable (explosive) Limits in Air: Not available.

Auto-ignition Temperature: Not available.

Flammability: Combustible liquid.

National Fire Code Classification: Not available.

Hazardous Combustion Products: During a fire, irritating and possible toxic gases may be generated by thermal decomposition or combustion. Combustion products may include and are not limited to: hydrogen chloride, carbon monoxide, carbon dioxide.

Conditions Under which Flammability Could Occur: Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Keep fire exposed containers cool by spraying with water. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist (avoid use of water jet). Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to Explosion by Mechanical Impact: Combustible liquid. See “Conditions Under Which Flammability Could Occur” in Section 5 above.

Sensitivity to Explosion by Static Discharge: Combustible liquid. See “Conditions Under Which Flammability Could Occur” in Section 5 above.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill clean-up follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective equipment and clothing as described in Section 8 and/or the product label.

Procedures for Dealing with Release or Spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

SECTION 7: HANDLING AND STORAGE

Handling Practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate Storage Practices/Requirements: Store above 0 °C in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Protect from freezing. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Applicable Control Measures, Including Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
2,4-D 2-ethylhexyl ester	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA*	No	Not established
Fluroxypyr-Meptyl	Not established	Not established	10 mg/m ³ TWA*	No	Not established
Heavy Aromatic Naphtha	Not established	Not established	17 ppm TWA*	No	Not established
1,2,4-	Not	25 ppm TWA	25 ppm	No	Yes

Trimethylbenzene	established		TWA**		
Hexanol	Not established	Not established	Not established	No	Not established
Naphthalene	10 ppm (50 mg/m ³) TWA	10 ppm TWA (skin); 15 ppm STEL (skin)	10 ppm (50 mg/m ³) TWA**	IARC Group 2B; NTP Anticipated Carcinogen	Yes

* Recommended by Manufacturer

** Recommended by NIOSH

† Material listed in Ingredient Disclosure List under the Hazardous Products Act

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Personal Protective Equipment for Each Exposure Route:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH certified respirator with an organic vapour cartridge and any N, R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow to orange liquid.

Formulation Type: Solution concentrate.

Odour: Mild.

Odour Threshold: Not available.

pH: 3.92 (@ 1%), pH electrode (1% aqueous suspension)

Viscosity: 13.1 mPas @ 20 °C.

Relative Density: Not available.

Specific Gravity or Density: 1.0604 g/mL @ 20 °C (Digital density meter).

Solubility in Water: 2,4-D 2-ethylhexyl ester: 0.0867 mg/L @ 25 °C.

Fluroxypyr-Meptyl: 91 mg/L @ 28 °C.

Water/Oil Partition Coefficient (log Kow): 2,4-D 2-ethylhexyl ester: 0.83

Fluroxypyr-Meptyl: 4.5

Vapour Pressure and Reference Temperature: 2,4-D 2-ethylhexyl ester: 3.6 x 10⁻⁸ mmHg.

Fluroxypyr-Meptyl: Not available.

Vapour Density: Not available.

Boiling Point: Not available.

Boiling Range: Not available.

Melting Point: Not applicable.
Freezing Point: Not available.
Evaporation Rate: Not available.
Flash Point and Method: 73.5 °C (Closed Cup).
Flammability: Combustible liquid.
Upper and Lower Flammable (Explosive) Limits in Air: Not available.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal use and storage conditions.
Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.
Incompatibility with Other Materials: Acids, bases, oxidizers.
Possibility of Hazardous Reactions: Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. Combustion products may include and are not limited to: hydrogen chloride, carbon monoxide, carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Slightly Acutely Toxic</u> Oral (LD50 Female Rat)	1,500 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Male/Female Rat)	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Male/Female Rat)	> 5.28 mg/L air – 4 hours
Eye Contact:	<u>Slightly Irritating</u>	
Skin Contact:	<u>Slightly Irritating</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Chronic/Sub-chronic Toxicity Studies:

2,4-D 2-ethylhexyl ester:	Based on available data, repeated exposures are not anticipated to cause significant adverse effects.
Fluroxypyr-Meptyl:	Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity:

2,4-D 2-ethylhexyl ester:	Did not cause cancer in laboratory animals.
Fluroxypyr-Meptyl:	Did not cause cancer in laboratory animals.

Reproductive Toxicity:

2,4-D 2-ethylhexyl ester:	Excessive dietary levels of 2,4-D acid have cause decreased weight and survival in offspring in a rat reproduction study.
Fluroxypyr-Meptyl:	In animal studies has been shown not to interfere with reproduction.

Teratogenicity:

2,4-D 2-ethylhexyl ester: Birth defects are unlikely. In laboratory animals however, exposures having no adverse effects on the mother had other harmful effects on the fetus.

Fluroxypyr-Meptyl: Birth defects are unlikely. Exposure having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

Mutagenicity:

2,4-D 2-ethylhexyl ester: In-vitro genetic toxicity studies were negative.

Fluroxypyr-Meptyl: In-vitro and animal genetic studies were negative.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Heavy Aromatic Naphtha: Generally recognized to have low acute and chronic toxicity if ingested and or breathed. Vapour concentrations above the exposure limit can cause eye and lung irritation and may cause headaches, dizziness, drowsiness or CNS depression. Prolonged or repeated skin contact may result in irritation.

1,2,4-Trimethylbenzene: Inhalation of 1,2,4-trimethylbenzene at high concentrations can cause central nervous system depression, respiratory tract irritation, asphyxiation, cardiac stress and coma. Effects of chronic exposure to this solvent can include blood disorders (anemia, leukopenia) and kidney or liver damage.

Hexanol: Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of skin contact (permeator), of inhalation. Slight hazardous in case of skin contact (corrosive). Inflammation of the eye is characterized by redness, watering and itching. Skin inflammation is characterized by itching, scaling, reddening or occasionally blistering. Hexanol is toxic to the nervous system and mucous membranes – repeated or prolonged exposure to the substance can produce target organ damage.

Naphthalene: Chronic overexposure to naphthalene can affect the liver, kidney and respiratory tract and blood. In a rat inhalation study with naphthalene, tumours were observed in the respiratory tract at all doses.

Carcinogen Status:

NTP: Anticipated Carcinogen.

IARC: Group 2B Possible Human Carcinogen.

Exposure to naphthalene can cause cataracts, liver damage, kidney failure, respiratory failure, hematuria, anemia, damage to red blood cells, leukocytosis, or coma.

SECTION 12: ECOLOGICAL INFORMATION
Eco-Acute Toxicity:

2,4-D 2-ethylhexyl ester:

Invertebrates (Water Flea) 96-hour EC ₅₀	> 1.91 ppm
Fish (Tidewater Silverside) 96-hour LC ₅₀	> 0.24 ppm
Birds (dietary – Mallard Duck) LC ₅₀	> 5,620 ppm

Fluroxypyr-Meptyl:

Invertebrates (Water Flea) 48-hour EC ₅₀	> 0.183 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	> 0.225 ppm
Birds (dietary – Bobwhite Quail) LC ₅₀	> 2,000 ppm

Environmental Fate:

2,4-D 2-ethylhexyl ester:

Not persistent in soil. Expected to be relatively immobile in soil.

Fluroxypyr-Meptyl:

Expected to be relatively immobile in soil.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Information: Do not reuse containers unless they are specifically designed to be refillable. Empty container retains product residue. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION 14: TRANSPORT INFORMATION**Shipping Classification:**

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION – ROAD/RAIL:

Not regulated.

Special Shipping Information:

Not applicable.

SECTION 15: REGULATORY INFORMATION**Hazardous Products Act Information: CPR Compliance**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products (PCP) Act Registration No.: 31673

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Revision Date (Y-M-D): 2017-12-31

Supersedes Date (Y-M-D): 2015-01-23

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