

MONSANTO

MATERIAL SAFETY DATA

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: FAR-GO® Herbicide
MSDS Number: S00010168 Date: April 1, 1999
Chemical Name: Formulation
EPA Reg. No.: 524-145

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR EMERGENCY MEDICAL INFORMATION (call collect): (314) 694-4000

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, OR ACCIDENT
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted)

For additional non-emergency information, call: 1-800-332-3111

2. COMPOSITION/INFORMATION ON INGREDIENTS

	<u>Component</u>	<u>CAS No.</u>	<u>% by weight</u>
Active Ingredient:	triallate*+	2303-17-5	46.3%
Inert Ingredients:	emulsifier*#		<5%
	C9 Aromatics (composition variable)*	64742-95-6 or 64741-98-6	40-46%

<u>Components of C9 Aromatics in this product</u>	<u>CAS No.</u>	<u>% by weight</u>
1,2,4-trimethylbenzene*+ or trimethyl benzenes (mixed)	95-63-6 or 25551-13-7	<18%
Xylenes (mixed)*+	1330-20-7	<8%
Cumene*+	98-82-8	<3%

* Hazardous chemical(s) under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

+This material is defined by and subject to the reporting requirements of SARA §313.

#The specific chemical identity is withheld because it is trade secret information of Monsanto Company.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: amber to light brown colored liquid

WARNING STATEMENTS

Keep out of reach of children

CAUTION!
CAUSES EYE IRRITATION
MAY CAUSE RESPIRATORY TRACT IRRITATION
HARMFUL IF SWALLOWED OR INHALED
COMBUSTIBLE

POTENTIAL HEALTH EFFECTS

LIKELY ROUTES OF EXPOSURE: skin contact and inhalation

EYE CONTACT: May cause pain, redness and tearing based on toxicity studies. Direct contact or excessive exposure to the hydrocarbon solvent vapors may result in eye irritation.

SKIN CONTACT: No more than slightly toxic based on toxicity studies. Prolonged or repeated contact with the hydrocarbon solvents in this product may cause pain, redness and dry skin.

INGESTION: No more than slightly toxic based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed. Coughing, choking and shortness of breath may occur if material is accidentally drawn into the lungs during swallowing or vomiting. This product contains hydrocarbon solvents and an emulsifier which if swallowed, may result in stomach upset with nausea and vomiting, and central nervous system (CNS) depression including headache, dizziness, fatigue, and with more severe exposures, incoordination, and unconsciousness.

INHALATION: No more than slightly toxic if inhaled based on toxicity studies. Inhalation of the hydrocarbon solvent vapors may be irritating to the respiratory tract. Prolonged or excessive inhalation of the hydrocarbon solvent vapors in the product may result in CNS depression.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED: Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED: Do NOT induce vomiting. Give large quantities of water. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE: For additional human emergency first aid or treatment guidance, call collect, anytime, day or night (314) 694-4000.

5. FIRE FIGHTING MEASURES

FLASH POINT: 115 degrees F (46 degrees C)

METHOD: Tag Closed Cup

HAZARDOUS PRODUCTS OF COMBUSTION: None known

EXTINGUISHING MEDIA: In case of fire, use water spray (fog), foam, dry chemical, or CO2.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

FIRE FIGHTING EQUIPMENT: Fire fighters and others exposed to products of combustion should wear self-

contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Observe all protection and safety precautions when cleaning up spills - See Exposure Controls/Personal Protection, Section 8.

Liquid spills on floor or other impervious surfaces should be contained or diked and should be absorbed with attapulgate, bentonite or other absorbent clays. Collect contaminated absorbent, place in metal drum and dispose of in accordance with instructions provided under DISPOSAL CONSIDERATIONS. Thoroughly scrub floor with a strong industrial type detergent solution and rinse with water.

Liquid spills that soak into the ground should be dug up, placed in metal drums and disposed of in accordance with instructions provided under DISPOSAL CONSIDERATIONS.

Leaking containers should be separated from those not leaking and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL CONSIDERATIONS. Collect and disposed of any recovered spilled liquid.

Refer to Section 13 for disposal information and Section 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling:

Avoid contact with eyes, skin or clothing.

Avoid breathing vapors or spray mist.

User should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Do not use, pour, spill or store near heat or flame.

Use only with adequate ventilation.

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Storage:

STORE ABOVE 32 DEGREES F (0 DEGREES C) TO KEEP FROM FREEZING.

Freezing will result in crystals which settle to the bottom. If allowed to freeze, place in a warm room (72 degrees F, 22 degrees C) and roll and shake the can frequently for several days to redissolve before using. For bulk containers, see the bulk container label for alternate storage information. Keep containers closed to prevent spills, evaporation and contamination.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Wear chemical safety goggles to prevent eye contact during operations such as mixing or transfer or other activities when there is potential for eye contact.

SKIN PROTECTION: Although this material does not present a significant skin concern, skin contamination should be minimized as good industrial practice. Applicators and other handlers must wear long-sleeved shirt, long pants, shoes plus socks, and chemical resistant gloves such as barrier laminate and viton. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment. If no such instructions for washables, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.

RESPIRATORY PROTECTION: Avoid breathing mist or vapor. This product is not likely to pose an airborne exposure concern when handled and used in accordance with label instructions.

VENTILATION: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). The use of local mechanical exhaust ventilation at sources of air contamination such as open process equipment is preferred.

AIRBORNE EXPOSURE LIMITS:

<u>Product/Component</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
FAR-GO®	None established	None established
triallate***	None established	None established
C ₉ aromatics (comp variable)**	None established	None established
emulsifier	None established	None established
trimethyl benzene	None established	25 ppm, 123 mg/m ³
xylenes (mixed)	100 ppm	100 ppm, 150 ppm STEL
cumene	50 ppm(skin)*	50 ppm TWA (skin)*

* -- Skin notation means that skin absorption of this material may add to the overall exposure. Avoid skin contact.

** -- 50 ppm TWA and 75 ppm STEL, A threshold limit value (TLV) has not been established for this product. The occupational exposure limit shown has been recommended by the supplier based on consideration of available toxicological data.

*** -- Monsanto has adopted an airborne exposure guideline of 56 ppb 8-hour TWA for this component.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	amber to brown colored liquid
Boiling Point:	320 degrees F
Solubility:	forms an emulsion
Specific Gravity:	1.03 at 25/15.6 degrees C
Vapor Pressure:	18 mmHg at 100 degrees F

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Stability:	Stable for at least four years under normal conditions of warehouse storage.
Materials to Avoid:	None known
Hazardous Decomposition Products:	None known
Hazardous Polymerization:	Will not occur
Incompatibility:	None known

11. TOXICOLOGICAL INFORMATION

Data from laboratory studies conducted by Monsanto with this material are summarized below:

Oral LD ₅₀ (Rat) -	2193 mg/kg, Slightly Toxic, FIFRA Category III
Dermal LD ₅₀ (Rabbit) -	>5000 mg/kg, Practically Nontoxic, FIFRA Category IV
Inhalation LC ₅₀ (Rat) -	>5.2 mg/l, Practically Nontoxic, FIFRA Category IV, Not DOT Poisonous
Eye Irritation (Rabbit) -	Score = 14.7/110.0, Moderately Irritating, FIFRA Category III
Skin Irritation (Rabbit, 24-hr) -	Score = 1.7/8.0, Slightly Irritating, FIFRA Category IV

COMPONENTS

Data from Monsanto studies and from the available literature on components of this product which have been identified under the criteria of the OSHA Hazard Communication Standard (29 CFR §1910.1200):

S-(2,3,3-Trichloroallyl)diisopropylthio carbamate (Triallate)

Abnormal behavioral effects have been observed in laboratory animals following single and repeated oral doses of TRIALLATE. No evidence of delayed neurotoxicity effects in chickens (repeat oral and dermal doses) or cholinesterase inhibition in rats (single oral doses) have been observed.

Following repeated exposures (30 to 90 days) to TRIALLATE in their feed, abnormal behavior, reduced body weights/body weight gains and food consumption, changes in blood composition, effects on gastrointestinal tract, sex organ, liver, thymus, spleen and kidney tissues, and some deaths were observed in laboratory animals (rats, hamsters, or dogs). Degeneration of nerve fibers in the peripheral nervous system and in a specific sensory nervous tract of the spinal cord were observed in rats after repeated dietary exposure (90 days) to high doses of TRIALLATE. Dogs fed TRIALLATE at a lower dose for a longer period (1 year) exhibited changes in blood chemistry. Following repeated skin exposure (3 week) to TRIALLATE, skin irritation was the primary effect in rabbits with one death observed at the highest dose. No skin allergy was observed in guinea pigs following repeated skin exposure. Eye and nasal irritation, changes in body weight and blood composition and effects on kidney tissues were noted following repeated inhalation (7 week) of TRIALLATE in rats.

Mice fed TRIALLATE in long-term (2 year) studies showed some organ weight changes, effects on liver, cornea, brain and spleen tissues and tumors in the liver. Liver tumors are the most common spontaneous tumor in this strain of mice, and it was concluded that the increased incidence of these tumors provides insufficient evidence of a treatment response. Hamsters and/or rats fed TRIALLATE (18-24 months) showed reduced body weight gain and survival, some organ weight changes and slight anemia. No adverse effects were observed in long-term (2 year) feeding studies in dogs. TRIALLATE did not produce tumors in these studies.

No birth defects were noted in rats and rabbits given TRIALLATE orally during pregnancy, even at amounts which produced toxic effects on the mothers and their offspring. Clinical signs of toxicity, reduced body and pup weights, and effects on some reproductive parameters (second generation only) were noted when rats were fed TRIALLATE for two successive generations.

TRIALATE produced genetic changes in standard tests which use animals or fruit flies. Both positive and negative responses have been reported in assays using animal or bacterial cells.

C₉ Aromatics (Containing mixed isomers of trimethylbenzene and xylene, and cumene)

This component is a complex, variable and combustible mixture consisting predominantly of C₉ aromatic hydrocarbons. Accidental swallowing of hydrocarbons is often associated with stomach and intestinal irritation, vomiting and CNS depression. These aromatic components have a low order of acute oral toxicity unless they enter the lungs (aspiration) during swallowing, or during spontaneous or induced vomiting following accidental swallowing. This may cause mild to severe injury to the lungs; symptoms of injury include increased breathing and heart rates, coughing, and related signs of respiratory distress. Irritation, changes in blood composition and toxic effects on liver and lung have been reported following repeated inhalation of trimethylbenzenes and xylenes by laboratory animals. Birth defects were reported in mice given mixed xylenes (containing ethylbenzene) orally during pregnancy, but only at a level which produced adverse effects on the mother. No adverse genetic changes in standard tests using bacterial and yeast cells, insects, animals and animals cells. For additional information on trimethylbenzenes, xylenes and cumene, please refer to the

current edition of the Documentation of the Threshold Limit Values and Biological Exposure Indices.

Emulsifier

Concentrated material is severely irritating or corrosive to eyes and irritating to skin and may contribute to the eye and skin irritation potential reported in tests on this product. This emulsifier is irritating to the respiratory tract. If large amounts are ingested, CNS depression may occur.

12. ECOLOGICAL INFORMATION

The results of single exposure (acute) environmental toxicity studies indicate that FAR-GO® herbicide is moderately toxic to two species of fish and practically nontoxic to quail.

13. DISPOSAL CONSIDERATIONS

This material when discarded is a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.21, due to its characteristic of ignitability, EPA hazardous waste number D001. In addition, this material when discarded is also a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.33, "as a discarded commercial chemical, off-specification species, container residue, or spill residue thereof", EPA hazardous waste number U389. Best Demonstrated Available Treatment (BDAT) as defined by RCRA is disposal by incineration. Dispose of in accordance with local, state and federal regulations.

Wastes of this pesticide may cause eye and respiratory tract irritation and may be dangerous. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

DO NOT CUT OR WELD ON OR NEAR THIS CONTAINER.

Do not reuse containers, except in accordance with Monsanto repackaging agreement. Return empty containers per the Monsanto container return program. If not returned, triple rinse emptied bulk containers then offer for recycling or reconditioning or dispose of in a manner approved by state and local authorities.

Dispose of containers as follows:

Plastic Jugs - Triple rinse container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Metal Drums/Cans - Triple rinse container. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

Product which has been contaminated or is not wanted and will be discarded is classified as hazardous under the Federal Resource Conservation and Recovery Act (RCRA) and related state laws. Specific State and Federal requirements for handling and disposal will apply. State regulations may vary and State authorities should be consulted.

Soil, water and other debris contaminated with this product may have to be treated as hazardous under RCRA. State or Federal authorities should be contacted for appropriate handling and disposal methods.

Consult your attorney or appropriate regulatory officials for further information on such disposal.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

U.S. DOT Classification: Compound, weed killing, liquid (petroleum naphtha), Combustible liquid, NA1993, III*
US DOT Label: Not applicable
Special Provisions: Marine Pollutant (1,2,4-trimethylbenzene)
IMDG Code: Petroleum distillates, n.o.s., mixture, class 3.3, UN1268, III
IATA/ICAO: Petroleum distillates, n.o.s., mixture, 3, UN1268, III

* Applies only in packages exceeding 119 gallons

15. REGULATORY INFORMATION

TSCA Inventory: All components are listed.

SARA Hazard Notification

Hazard Categories Under Title III Rules (40 CFR 370): Immediate (Acute), Delayed (Chronic), Fire
Section 313 Toxic Chemical(s): cumene, triallate, 1,2,4-trimethylbenzene

CERCLA Reportable Quantity: 1 lb RQ of triallate

Release of more than 2 pounds of this product to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

Refer to Section 2 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

Reason for revision: Sections 14 and 15 updated.

Supersedes MSDS dated 5/18/96

FAR-GO is a registered trademark of Monsanto Company

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

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