



TREFLAN® E.C.

Weed and Grass Preventer

A selective, preemergence herbicide for use in
ornamental and vegetable gardens
for the control of annual grasses and broadleaf weeds

Active Ingredient:

Trifluralin* (a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine) 43.0%

Inert Ingredients: 57.0%

Total: 100.0%

Contains petroleum distillates.

Contains 4 pounds active ingredient per gallon.

EPA Reg. No. 17545-9

EPA Est. No. 48498-CA-1

* Trademark of DowAgroSciences LLC

Manufactured For:

MONTEREY CHEMICAL COMPANY

P. O. Box 5317 • Fresno, CA 93755 • (209) 499-2100

KEEP OUT OF REACH OF CHILDREN WARNING/AVISO:

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

STATEMENT OF PRACTICAL TREATMENT

If In Eyes: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.

If Swallowed: Do not induce vomiting. Call a physician or Poison Control Center. If available, administer activated charcoal (6-8 heaping teaspoonfuls) with a large quantity of water. Do not induce vomiting or give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

If On Skin: Immediately wash with plenty of soap and water. Get medical attention if irritation develops.

If Inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

NOTE TO PHYSICIAN: This product contains an aromatic hydrocarbon and can be extremely harmful if swallowed. Aspiration of this product may produce a severe pneumonitis. Stomach lavage with a cuffed endotracheal tube in place and immediate administration of activated charcoal, 6-8 heaping teaspoonfuls with water, should be considered. Treatment is otherwise symptomatic and supportive.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: Causes substantial but temporary eye injury. Harmful if swallowed, inhaled, or absorbed through the skin. May cause skin sensitization reaction in certain individuals. Avoid breathing vapors or spray mist and contact with skin, eyes, or clothing.

Personal Protective Equipment (PPE):

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical resistance category selections chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants • Chemical-resistant gloves such as Barrier Laminate or Viton • Shoes plus socks • Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statements

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift or runoff from treatment areas may be hazardous to aquatic organisms in neighboring aquatic sites. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use Carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

TREFLAN E.C. is a selective preemergence herbicide for the control of annual grasses and broadleaf weeds in nursery stock, ornamental trees, ornamental woody shrubs, ornamental groundcover, roses, established flowers, vegetable gardens and under paved surfaces.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker's Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval of 12 hours.

Exception: If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated areas if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Shoes plus socks
- Protective eyewear

Special Precaution: Do not apply Treflan E.C. through any type of irrigation system.

GENERAL INFORMATION

TREFLAN E.C. is a preemergence herbicide which is incorporated (mixed) into the soil to provide a long-lasting control of annual grasses and broadleaf weeds (see following list). TREFLAN E.C. controls weeds by killing their seeds as they germinate. It does not control established weeds.

Incorporation of TREFLAN E.C. helps assure effective weed control regardless of weather conditions and permits shallow cultivation, rotary hoeing and hand hoeing without reducing its weed control activity.

TREFLAN E.C. is recommended for use on a wide variety of vegetables, ornamental trees, ornamental groundcovers, shrubs and flowers. The ornamental species on which TREFLAN E.C. can be used at recommended rates without damage include those listed in label under "Approved Ornamental Species."

GENERAL USE PRECAUTIONS

Applied according to directions and under normal growing conditions, TREFLAN E.C. will not harm the treated crop. Over application may result in crop injury or a soil residue. Uneven application or improper soil incorporation of TREFLAN E.C. can result in erratic weed control or crop injury. Seedling disease, cold weather, deep planting, excessive moisture, high salt concentration or drought may weaken crop seedlings and increase the possibility of damage from TREFLAN E.C. Under these conditions, delayed crop development or reduced yields may result.

GRASSES CONTROLLED BY TREFLAN E.C.

Annual bluegrass	Johnsongrass (from seed)
Barnyardgrass (Watergrass)	Junglerice
Brachlaria	Panicum, Fall
Bromegrass	Panicum, Texas
Cheat	Sandbur
Crabgrasses	Sprangletop
Foxtail	Stinkgrass
	Woolly cupgrass

BROADLEAF WEEDS CONTROLLED BY TREFLAN E.C.

Carpetweed	Lambsquarters
Chickweed	Pigweed
Florida pusley	Puncturevine (Western U.S. only)
Goosefoot	Purslane
Knotweed	Russian thistle
Kochia	Stinging nettle

Note: TREFLAN E.C. will not control certain resistant weeds such as Cocklebur, Velvetleaf, Jimsonweed, Ragweed, Venice Mallow and Nutgrass.

ORNAMENTALS**APPLICATION DIRECTIONS**

TREFLAN E.C. is to be mixed with water and applied as a spray before, or in the same operation as soil incorporation. Apply in 5 to 40 gallons of water per acre (broadcast basis) using any properly calibrated low-pressure boom-type herbicide sprayer that will uniformly apply the spray. Pour the recommended amount of TREFLAN E.C. for your soil type into the spray tank during the filling operation and mix thoroughly before spraying. Do not apply more than the recommended amount.

INCORPORATION DIRECTIONS

TREFLAN E.C. must be incorporated into the soil after application to prevent loss of its activity. Spraying and incorporation should be done in the same operation, if possible. Incorporation may be delayed up to 24 hours after application. Variable weed control may result from delayed incorporation if TREFLAN E.C. is applied to a wet, warm soil surface or if the wind velocity is 10 mph or higher.

The machinery used for incorporation should break up large clods and mix TREFLAN E.C. thoroughly with the soil. The more thoroughly TREFLAN E.C. is mixed with the soil, the more consistent the weed control will be.

Apply and incorporate TREFLAN E.C. prior to planting new nursery stock liners, ornamentals, trees and woody shrubs, and gladioli. (Gladioli corms less than 1 inch in diameter may be injured by pre-plant applications of TREFLAN E.C.) TREFLAN E.C. may also be applied to established plantings by using a directed spray to the soil between the rows and beneath the plants.

Incorporation Before Planting (Pre-plant): Thorough incorporation may be achieved with the following:

- 1) P.T.O.-driven equipment (tillers, cultivators, hoes) set to cut 2 to 3 inches deep with rotors spaced to provide a clean sweep of the soil;
- 2) Double disc (or double disc with spiketooth harrow in tandem) set to cut 3 to 4 inches deep and operated in two different directions (cross disced) at 4 to 6 mph;
- 3) Mulch treader and other similar disc-type implements set to cut 3 to 4 inches deep and operated twice at 5 to 8 mph;
- 4) Rolling cultivators set to cut 2 to 4 inches deep and operated twice at 6 to 8 mph; or
- 5) A bed conditioner (Do-All) set to cut 2 to 4 inches deep and operated at 4 to 6 mph.

Incorporation After Planting (Post-plant): Incorporation may be achieved around established plants by using P.T.O.-driven equipment (tillers, cultivators, hoes) set to cut 2 to 3 inches deep with rotors spaced to provide a clean sweep of the soil, or rolling cultivators set to cut 2 to 4 inches deep and operated twice at 6 to 8 mph. When incorporating TREFLAN E.C. in transplants, new liners, or established plants, the implement should be adjusted so that the treated soil is thrown forward and around the plants in the row.

Clean cultivate areas to be treated before application since TREFLAN E.C. will not control established weeds.

Shallow incorporation with implements set to cut soil less than 2 inches deep may result in erratic weed control. Do not use spiketooth or springtooth harrows alone for incorporation.

**Broadcast (Overall) Application Rates
for Soil Incorporation Only**

Coarse Soils	Sand and sandy loam 1 pint per acre (1/2 pound of active ingredient)
Medium Soils	Loam, silt loam and silt 1 1/2 pints per acre (3/4 pound of active ingredient)
Fine Soils	Clay loam, silty clay and clay 2 pints per acre (1 pound of active ingredient)

For band applications, use the following formula to figure the proportionate amount:

$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \text{recommended broadcast rate} = \text{amount to apply per acre on band}$$

TREFLAN E.C. not recommended on muck soils.

**SURFACE APPLICATION AND WATER INCORPORATION
DIRECTIONS FOR ORNAMENTALS, VEGETABLE GARDENS
AND GROUNDCOVER PLANTINGS**

Start with clean spray tank. Fill sprayer 1/2 full with clean water. Add 1 gallon per acre or 3 ounces per 1,000 square feet of TREFLAN E.C. and mix well. Finish filling sprayer with water and agitate or shake occasionally to keep solution mixed. Spray solution directly onto soil.

APPROVED ORNAMENTAL SPECIES**Woody Shrubs**

Andromeda, Japanese
Arbovitae, American
Azalea
Barberry, Japanese
Barberry, mento
Boxwood, common
Boxwood, Harlands
Boxwood, littleleaf
Camellia, Japanese
Camellia, sasanqua
Cherry laurel, American
Cinquefoil
Cleyera, Japanese
Cotoneaster, cranberry
Cotoneaster, zabel
Deutzia
Elaeagnus, silverberry
Euonymus, spreading
Euonymus, winged
Euonymus, wintercreeper
Firethorn

Forsythia
Guava, pineapple
Hawthorn, India
Holly
Honeysuckle
Juniper
Laurel, mountain
Lilac, common
Mockorange
Pittosporum, Japanese
Privet
Redcedar, eastern
Rhododendron
Spiraea, Vanhoutte
Viburnum
Weigela
Willow
Yew, anglo-japan
Yew, Japanese
Yewpine

Trees

Almond
Apple, Crabapple
Apricot
Ash, white
Baldcypress
Birch, european white
Blackgum
Cherry
Chestnut, Chinese
Cottonwood
Dogwood, flowering
Dogwood, kousa
Douglas fir
Fir, balsam
Hemlock, Canada
Honey locust
Larch, Japanese
Locust, black
Maple, Norway
Maple, red
Maple, silver

Maple, sugar
Oak, pin
Oak, red
Oak, Scarlet
Peach
Pine, Austrian
Pine, Eastern white
Pine, Japanese black
Pine, loblolly
Pine, red
Pine, scotch
Planetree, London
Plum
Redbud, eastern
Spruce, Colorado
Spruce, Norway
Spruce, white
Sweetgum
Sycamore
Tuliptree
Walnut, black

Groundcover Plantings

Aaronsbeard	Lilyturf, bigblue
Bellflower, Adriatic	Marigold
Bellflower, Poscharsky	Myoporum
Ceanothus	Plumbago, dwarf
Coreopsis	Rockrose
Cotoneaster	Rosemay
Coyote brush	Rapturewort
Crown vetch	Snow-in-Summer
Daisy, Trailing African	Speedwell
Fern, asparagus	St. Johnswort
Gazania	Stonecrop (Sedum)
Germander	Strawberry, beach
Ice plant, largeleaf	Thrift
Ivy, Algerian	Verbena
Ivy, English	Wirevine, creeping
Lily-of-the-Nile	Yarrow, woolly
	Zoysiagrass

Roses and Other Established Flowers

African daisy	Marigold
Aster (perennial)	Marigold, cape
Balsam	Morningglory
Blackeyed Susan	Nasturtium
Calendula	Nicotiana
Carnation	Petunia
Centaurea, velvet	Phlox
Chrysanthemum	Pincushion flower
Coreopsis	Poppy, California
Cornflower	Portulaca
Cosmos	Rose
Dahlia	Salvia
Dianthus	Shasta daisy
Dusty Miller	Snapdragon
Floss flower	Snow-on-the-Mountain
Forget-me-not	Stock
Four O'Clock	Sunflower
Gallardia	Sweet alyssum
Gladiolus	Sweet pea
Golden glow	Sweet sultan
Impatiens	Sweet William
Ixora	Vinca
Lobelia	Yarrow
Lupine	Zinnia

FIELD GROWN ROSES

TREFLAN E.C. may be applied as an incorporated treatment at a rate of 2 quarts per acre to field grown roses to control annual weeds listed on this label. Apply to the soil surface in 5 to 40 gallons of finished spray and incorporate within 24 hours. Use a directed spray if application is made when roses are actively growing. Set incorporation equipment to avoid damage to root systems of established roses.

Do not apply more than 2 quarts (2 pounds a.i.) per acre per year.

VEGETABLE GARDENS**SOIL PREPARATION**

Crop Residues or Existing Weeds: Crop residues or existing weeds can interfere with the mixing of TREFLAN E.C. into the soil. A manageable level of such residues would allow the TREFLAN E.C. to be uniformly mixed into the top 2 to 3 inches of soil. If the level of the crop residue is such that this cannot be done, you must till the soil prior to application.

Soil Texture Guide: The amount of TREFLAN E.C. you apply will vary with the soil texture to be treated. A fine textured soil will require more TREFLAN E.C. than a coarse soil. Choose the proper rate for each application based on the following soil texture group and specific crop recommendations. Do not exceed the recommended rates.

Soil Texture	Soil Classification
Coarse Soils (Light)	Sands, loamy sands, sandy loams
Medium Soils	Silt or loam
Fine Soils (Heavy)	Clay loams, silty clay loams, clays, silty clays

MIXING DIRECTIONS

Start with a clean spray tank. Fill sprayer 1/2 full with clean water. Add correct quantity of TREFLAN E.C. Close the sprayer and shake well to mix TREFLAN E.C. Finish filling sprayer and shake occasionally to keep TREFLAN E.C. mixed in the tank.

GROUND APPLICATION

Apply TREFLAN E.C. in 1 to 5 gallons of water per 1,000 square feet on a broadcast basis. Spray uniformly over the top of the soil surface to assure satisfactory weed control.

INCORPORATION DIRECTIONS

Mix TREFLAN E.C. thoroughly into the soil with a tool or implement that breaks up large clods and distributes the chemical within the soil. The more thoroughly the TREFLAN E.C. is mixed within the soil, the more consistent the weed control.

Thoroughly mix TREFLAN E.C. in the top 2 to 3 inches of the final seedbed (when the garden is ready for planting) or erratic weed control and/or crop injury may result. Equipment such as a rototiller or rake should be used to mix TREFLAN E.C. to the desired 2 to 3 inch depth.

Incorporation Before Planting: TREFLAN E.C. must be mixed into the soil within 24 hours after application. You should mix the TREFLAN E.C. uniformly into the top 2 to 3 inches of the final seedbed.

Incorporation After Planting: Check specific crop incorporation directions after planting.

Cultivation After Planting: Soil treated with TREFLAN E.C. may be shallow cultivated without reducing the weed control activity of TREFLAN E.C. Do not cultivate deeper than the treated soil since this may bring untreated soil to the surface, and poor weed control may result.

CROP RECOMMENDATIONS

These recommendations are given as broadcast rates of TREFLAN E.C. per 1,000 square feet. Apply any time after January 1 when the soil can be worked and is suitable for good incorporation. Do not use TREFLAN E.C. on soils containing more than 10% organic matter. TREFLAN E.C. should not be used in areas to be planted with sweet corn or direct seed cucurbits.

For the Crops Listed Below, Use the Following Broadcast Rates per 1,000 Square Feet.

TREFLAN E.C.	
Soil Texture	Teaspoons
Coarse	2-1/4
Medium	3-1/3
Fine	4-1/2

CROPS	DIRECTIONS
Asparagus — Established	Follow recommended soil preparation, application and incorporation procedures for TREFLAN E.C. TREFLAN E.C. can be applied to established asparagus as a single application. Apply TREFLAN E.C. to asparagus after ferns are removed but before spear emergence.
Carrot	Apply and incorporate TREFLAN E.C. before planting, at planting or immediately after planting unless otherwise indicated.
Celery — Direct seeded and transplant	Apply and incorporate TREFLAN E.C. before planting, at planting or immediately after planting unless otherwise indicated.
Cole Crops — Transplant (Broccoli, Brussels Sprout, Cabbage and Cauliflower)	Apply and incorporate prior to transplanting only. See next section for direct seeded.
Cucurbits — Postplant Emerged (Cantaloupe, Cucumber and Watermelon)	Apply TREFLAN E.C. as a direct spray to the soil between the rows and beneath the plants which are in the 3 to 4 true leaf stage. After applying TREFLAN E.C. to the soil, incorporation is necessary to mix the chemical to the 2-3 inch desired depth. Optimum weed control will be achieved by moving a portion of the treated soil around the base of the established plants.
Okra	Apply and incorporate TREFLAN E.C. before planting, at planting or immediately after planting unless otherwise indicated.

CROPS	DIRECTIONS
Pepper — Transplant	Apply and incorporate prior to transplanting only.
Potatoes — (All states except Maine)	Apply and incorporate TREFLAN E.C. after planting, before emergence, or immediately following dragoff or after the potato plants have fully emerged. Mix TREFLAN E.C. into the soil so a uniform layer of treated soil covers the bed. Concentrated areas of chemical in the bed may retard potato emergence and cause stem brittleness. If potato plants are already emerged when cultivating, do not totally cover foliage with treated soil. Do not damage potato seed pieces or elongating sprouts with incorporation equipment.
Southern Pea	Apply and incorporate TREFLAN E.C. before planting only.
Tomato — Transplant	Apply and incorporate prior to transplanting only.

For the Crops Listed Below, Use the Following Broadcast Rates per 1,000 Square Feet

TREFLAN E.C.	
Soil Texture	Teaspoons
Coarse	2-1/4
Medium	2-1/4
Fine	3-1/3

CROPS	DIRECTIONS
Beans (Lima Bean and Snap Bean)	Apply and incorporate TREFLAN E.C. before planting.
Cole Crops — Direct Seeded (Broccoli, Brussels Sprout, Cabbage and Cauliflower)	Apply and incorporate TREFLAN E.C. prior to planting. See above section for transplant directions.
Greens (Turnip Greens, Collard, Kale and Mustard)	Apply and incorporate before planting.
Green Pea	Apply and incorporate before planting.

UNDER PAVED SURFACES

Directions for Use and Site Preparation

TREFLAN E.C. should be used only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, they should be removed by scalping with a grader blade to a depth sufficient to insure their complete removal.

Applications should be made only when the final grade is established or after additions of base rock. Do not move soils following TREFLAN E.C. application and do not apply TREFLAN E.C. to areas where asphalt is to be installed directly on top of soil.

Paving should follow TREFLAN E.C. applications as soon as possible.

Application Directions

Large Areas: Apply TREFLAN E.C. in sufficient water to insure thorough wetting of the soil surface or penetration of the spray solution through the base rock layer. A minimum of 150 gallons per acre is recommended. Apply with any sprayer that will apply the spray uniformly. Add the recommended amount of TREFLAN E.C. to clean water in the spray tank during the filling operation. Agitate before spraying.

Small Areas: For treating small areas, a tank type hand sprayer or sprinkling can may be used. Before application determine the amount of water and TREFLAN E.C. necessary to uniformly cover the area to be treated. Shake or stir the spray solution prior to application.

The Proper Amount of TREFLAN E.C. to Apply

Small Areas	9 to 12 ounces/1,000 square feet
Large Areas	3 to 4 gallons/acre

TREFLAN E.C. RATE CONVERSION CHART

Rate Per 1,000 Square Feet to Rate Per Acre	
Rate Per 1,000 Square Feet (Teaspoons)	Rate Per Acre (Pints)
2-1/4	1
3-1/3	1-1/2
4-1/2	2

SMALL SPRAYER CALIBRATION TECHNIQUE

Small sprayer calibration can be achieved by following these five simple steps:

1. Fill the sprayer full of clean water.
2. Spray as you would normally apply chemicals through the sprayer over the area to be treated.
3. When the sprayer is empty, measure the area treated to determine the number of square feet per sprayer load.
4. After you have calculated the number of square feet per sprayer load, calculate the amount of TREFLAN E.C. needed to treat that size area.
5. Refer to the mixing directions on the TREFLAN E.C. product label.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Storage: Store in original container only. Avoid freezing. Store above 40°F. If frozen, poor weed control may result. Do not store near heat or open flame. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Plastic Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CONDITIONS OF SALE AND WARRANTY

Monterey Chemical Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated when used in accordance with the use directions under normal conditions. Monterey Chemical Company neither makes, nor authorizes any agent or representative to make, any other warranties, express or implied, including fitness or merchantability.

The directions for use of this product are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as timing and method of application, weather and crop conditions, presence of other materials, or other influencing factors, all of which are beyond the control of Monterey Chemical Company and Seller. Buyer and user acknowledge and assume all risks and liability resulting from the handling, storage and use of this material not in strict accordance with directions given herewith. In no case shall Monterey Chemical Company or the Seller be liable for consequential, special, indirect, or incidental damages or losses resulting from the handling or use of this product. The foregoing is a condition of sale by Monterey Chemical Company and is accepted as such by the Buyer.



SPECIALTY AGRICULTURAL CHEMICALS
MICRONUTRIENTS FOR AGRICULTURE AND FEED
AGRICULTURAL RESEARCH

TREFLAN® E.C.

Issue Date: 3/98

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Chemical Product

TREFLAN® E.C.

EPA Reg. No. 17545-9

Common Name:

Liquid herbicide.

Chemical Description:

Trifluralin.

TSCA/CAS No.:

This product is a mixture — therefore there is no single CAS number.

Manufactured For

Monterey Chemical Company

P. O. Box 5317

Fresno, CA 93755

Emergency Phone Numbers

Emergency Telephone: DAYS: (209) 499-2100 EVES.: (209) 431-7390

CHEMTREC (24-Hour Emergency Number): (800) 424-9300

EPA National Response Center: (800) 424-8802

SECTION 2. HAZARDOUS INGREDIENTS

<u>CHEMICAL</u>	<u>CAS NO.</u>	<u>%</u>	<u>TLV OR PEL</u>	<u>RO (lbs)</u>
Trifluralin	1582-09-8	43.0	N.P.*	N.P.
Xylene	1330-20-7	18.0	N.P.	1.0
Ethylbenzene	100-41-4	<3.0	N.P.	1000
Naphthalene	91-20-3	<4.0	N.P.	100

* N.A. - Not available.

* N.P. - Not pertinent.

SECTION 3. EMERGENCY/HAZARDS OVERVIEW

Clear deep orange liquid with aromatic odor. Causes substantial but temporary eye irritation. Harmful if swallowed, inhaled, or absorbed through skin. Will emit toxic vapors if burned. Contain any liquid runoff. D.O.T. regulated as a flammable liquid. ERG #128.

Product Name: TREFLAN® E.C.
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SECTION 3. EMERGENCY/HAZARDS OVERVIEW (Continued)

HEALTH: 2 REACTIVITY: 0 FLAMMABILITY: 2 ENVIRONMENT: 1

(0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme)

SECTION 4. FIRST AID

Eyes: Immediately flush with plenty of water. Call a physician.

Skin: Immediately flush skin with plenty of water. Wash with plenty of soap and water. Remove and wash contaminated clothing before reuse. Get medical attention if irritation persists.

Ingestion: Do not induce vomiting. Call a physician and/or transport to an emergency facility immediately.

Note to Physician: This product contains an aromatic hydrocarbon and can be extremely harmful if swallowed. Aspiration of this product may produce a severe pneumonitis. Stomach lavage with a cuffed endotracheal tube in place and immediate administration of activated charcoal, 6-8 heaping teaspoonfuls with water, should be considered. Treatment is otherwise symptomatic and supportive.

Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. Get immediate attention.

SECTION 5. FIRE AND EXPLOSION HAZARDS

Flash Point:	114 to 119°F.
Test Method:	SCC
LFL Flammable Limits:	1.2 +/- 0.1 mol % at 203°F.
UFL Flammable Limits:	Not established.
Autoignition Temperature:	554°F.
Flammability Classification:	Flammable.
Known Hazardous Products of Combustion:	Not available.
Properties that Initiate/Contribute to Intensity of Fire:	Not available.
Potential For Dust Explosion:	None.
Reactions that Release Flammable Gases or Vapors:	None known.

Product Name: TREFLAN® E.C.
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SECTION 5. FIRE AND EXPLOSION HAZARDS (Continued)

Potential For Release of Flammable
Vapors:

None.

Unusual Fire & Explosion Hazards:

Closed containers may explode due to pressure build-up when subjected to excessive heat or intense fire. Will emit toxic fumes as it burns.

Extinguishing Media:

Water, CO₂, or dry chemicals.

Special Firefighting Procedures:

Stay upwind of smoke. Wear full protective clothing, positive pressure, self-contained breathing apparatus and goggles. Contain any liquid runoff.

SECTION 6. SPILLS AND LEAKS

Containment:

Product is toxic to fish. Prevent product spillage from entering drinking water supplies or streams.

Clean Up:

Collect liquid or absorb onto absorbent material and package for disposal according to local, state and federal regulations.

Evacuation:

Not necessary but restrict entry.

Reporting:

When spills of TREFLAN E.C. exceed the RQ it must be reported as a priority pollutant under the CERCLA spill reporting requirements.

SECTION 7. STORAGE AND HANDLING

Storage:

Store in plastic or stainless steel container in a cool, well-ventilated, dry place at temperatures above 40°F. Do not store in contact with aluminum, copper, tin, zinc or galvanized metals. Do not contaminate water, food, feeds, seeds, fertilizers, insecticides or fungicides. Do not stack pallets more than two (2) high.

Transfer Equipment:

Transfer product using chemical-resistant plastic or stainless steel tanks, pumps, valves, etc.

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SECTION 7. STORAGE AND HANDLING (Continued)

Work/Hygienic Practices: Harmful if swallowed or inhaled. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing. Causes eye irritation. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children and domestic animals off treated areas until washed into the soil. Avoid contamination of feed or food products.

SECTION 8. PERSONAL PROTECTIVE EQUIPMENT

Eyes: Protective eyewear.

Skin: Long sleeved shirt and long pants; chemical-resistant gloves such as Barrier Laminate or Viton; shoes plus socks; protective eyewear.

Respiratory: Use NIOSH-approved dust/mist respirator (such as 3M #8710).

Ventilation: Recommended but no TLV established.

SECTION 9. PHYSICAL AND CHEMICAL DATA

Appearance:	Clear, deep orange liquid.
Odor:	Aromatic.
pH:	8.0
Vapor Pressure:	7.0 mm Hg.
Vapor Density (Air = 1):	1.06 to 1.07
Boiling Point:	280°F)
Freezing Point:	Not available.
Water Solubility:	Emulsifies in water.
Density:	8.84 - 8.92 lbs./gal.
Evaporation Rate (butyl acetate = 1):	Not available.
Viscosity:	Not available.
% Volatile:	Not available.
Octanol/Water Partition Coefficient:	Not available.
Saturated Vapor Concentration:	Not available.

SECTION 10. STABILITY AND REACTIVITY

Stability: Avoid freezing, store above 40°F.
Conditions To Avoid: Do not store near heat or flames.

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SECTION 10. STABILITY AND REACTIVITY (Continued)

Incompatibility: Heat or flame.

Hazardous Decomposition Products: Will emit toxic vapors as it burns.

Hazardous Polymerization: Will not occur.

SECTION 11. POTENTIAL HEALTH EFFECTS

Acute Effects:

Eyes: May cause moderate irritation with corneal injury. In test animals, effects healed in 1 - 14 days. Solvent vapors may irritate eyes.

Skin: Prolonged or repeated exposure may cause skin irritation, even a burn. May cause allergic skin reaction in susceptible individuals. May cause drying or flaking of skin. LD₅₀ (Rabbits) > 2000 mg/kg.

Ingestion: Single dose oral toxicity is low. The oral LD₅₀ (Rats) > 2900 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia, a condition caused by petroleum and petroleum-like solvents.

Inhalation: Based on data obtained on solvent, excessive vapor concentrations (of solvent components) are attainable and could be hazardous on single exposure; excessive exposure may cause irritation of the eyes, upper respiratory tract, and lungs. Signs and symptoms of excessive exposure may be central nervous systems effects.

Systemic (Other Target Organ) Effects: Excessive exposure may cause liver, kidney, lung and blood effects. Xylene is reported to have cause hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans. One component (naphthalene) has been associated with cataracts and other eye effects from vapors or dust.

Cancer Information: Solvent did not cause cancer in long-term animal studies. Xylene in solvent was not found to be carcinogenic in rats and mice. The active ingredient (trifluralin) was associated with a low incidence of urinary tract tumors in one strain of rat in 1 of 5 chronic (2 yr) studies conducted, and is not anticipated to be a carcinogenic risk to man.

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SECTION 11. POTENTIAL HEALTH EFFECTS (Continued)

Teratology (Birth Defects): Solvent contains a small amount of ethylbenzene which has caused birth defects in laboratory animals. Exaggerated doses of xylene (in solvent) given orally to pregnant mice resulted in an increase in cleft palate, a common development abnormality in mice. Inhalation exposure of xylene to pregnant animals resulted in toxicity to the fetus at concentrations nontoxic to the mother but did not cause any birth defects.

Reproductive Effects: Results of animal tests with ethylbenzene component (in solvent) suggest an adverse effect on male or female reproductive systems; however, data are inconclusive.

Mutagenicity (Effects on Genetic Material): Active ingredient has been negative in most in vivo and in vitro test results. Positive results in one study (*Drosophila m.*) are contradicted by results in mammalian test systems.

SECTION 12. ECOLOGICAL INFORMATION

Algal/Lemna Growth Inhibition: Not known.

Toxicity to Fish and Invertebrates: Toxic.

Toxicity to Plants: Toxic.

Toxicity in Birds: Not known.

SECTION 13. DISPOSAL

Do not contaminate lakes, streams, ponds, estuaries, oceans or other waters by discharge of waste effluents or equipment washwaters. Dispose of waste effluents according to state and local regulations. Also, chemical additions or other alterations of this product may invalidate any disposal information in this MSDS. Therefore, consult local waste regulators for proper disposal. Do not discharge.

SECTION 14. TRANSPORTATION

D.O.T. Proper Shipping Description: Flammable Liquid, N.O.S. (Xylene/Trifluorolalin),
3, UN 1993, PG III, RQ 1000 Lb/10 Lb.
(Placards Req. For Loads More Than 1,001 Lbs.)
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SECTION 14. TRANSPORTATION (Continued)

Other Shipping Description: Compounds, Tree or Weed Killing (Herbicide), Liquid.
(NMFC Item 50320, LTL Class 60)

SECTION 15. REGULATORY INFORMATION

CERCLA: Ethylbenzene, naphthalene and xylene are listed as priority pollutants under the Clean Water Act and, as such, fall under the CERCLA spill reporting requirements of 40 CFR 302.

SARA TITLE III, Section 313 Toxic Chemicals: Ethylbenzene (<3.0%), Naphthalene (<4.0%), Xylene (18%), and Trifluralin (43.0%).

PROPOSITION 65: None.

SECTION 16. OTHER

All information appearing in this document was based on data provided by third party sources and was compiled to comply with the Federal Hazard Communication Standard and the California Hazardous Substances Information and Training Act. The information is believed to be accurate as of the preparation date, but is not warranted as being the final authority in the use of this product. This information does not purport to be legal or medical advice.
