Shell D-D® Soil Fumigant

KEEP CONTAINER AND CONTENTS AWAY FROM HEAT OR OPEN FLAME (FLAMMABLE LIQUID, N.O.S.)

ACTIVE INGREDIENTS — BY WEIGHT

Chlorinated C3 Hydrocarbons, including 1,3-Dichloropropene, 1,2-Dichloropropane, 3,3-Dichloropropene, 2,3-Dichloropropene, and Other Related Chlorinated Hydrocarbons 100.0%

EPA Reg. No. 201-119

This product contains 10 pounds active ingredient per gallon.

ACCEPTED

JUL 10 1978

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 201-119

KEEP OUT OF REACH OF CHILDREN

DANGER

HAZARDOUS LIQUID AND VAPOR MAY BE FATAL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED CAUSES BURNS OF SKIN OR EYES MAY PRODUCE KIDNEY AND LIVER DAMAGE UPON PROLONGED EXPOSURE

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED induce vomiting immediately by giving two glasses of water and sticking finger down throat. Call a physician. Never give anything by mouth to an unconscious person.

IF INHALED remove to fresh air. If not breathing give artificial respiration, preferably mouth to mouth. If breathing is labored give oxygen. Call a physician.

IF ON SKIN immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes or boots. Call a physician. If water is not immediately available remove excess chemical from skin with sorbent material such as a towel or dry soil, then proceed at once to a location where water is available.

IF IN EYES immediately flush eyes with water for at least 15 minutes. Call a physician.

See Side Panel For Additional Precautionary Statement

NET CONTENTS _____

ACL 16790 5-78

SHELL CHEMICAL COMPANY, A DIVISION OF SHELL OIL COMPANY, AGRICULTURAL CHEMICALS, HOUSTON, TEXAS 77001

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

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DO NOT INHALE
NIOSH or MESA approved respiratory equipment should be worn when liquid D-D is exposed to the atmosphere. A NIOSH/MESA approved half mask organic vapor respirator (such as MSA 460988 with a 464031 cartridge or Wilson 1721) should be worn during loading and maintenance operations where only small amounts of liquid or vapor are released. For loading and maintenance operations where sizeable amounts of liquid or vapor are released in unventilated or confined spaces a NIOSH/MESA approved full facepiece (such as MSA 460560 with 464031 cartridge or a Wilson 1621) organic vapor cartridge respirator is recommended. When liquid D-D is exposed to the atmosphere in confined spaces where high concentrations may occur, where oxygen deficiency may occur, when handling large spills and during fire fighting a self-contained breathing apparatus is required. Cartridges should be replaced per manufacturer's instructions but should in no case be used if the odor of the product is present. Used cartridges should be destroyed immediately.

DO NOT GET ON SKIN
When handling or working with D-D wear clean body covering including polyethylene or neoprene gloves and heavy (greater than 3 mil thickness) polyethylene, neoprene or rubber footwear. Leather goods offer no protection. Wash and aerate all clothing and gear thoroughly after use or immediately following significant contamination. Never wear clothing, footwear or gear having an odor of D-D. If accidentally contaminated, thin rubber and leather items must be disposed of by burying in soil, do not reuse.

DO NOT GET IN EYES
Wear eye protection such as chemical workers goggles when handling D-D.

DO NOT SWALLOW
Do not use the mouth to siphon D-D from containers or to blow out clogged lines, nozzles, etc. Wash thoroughly after handling and before eating or smoking.

ENVIRONMENTAL HAZARDS

To avoid injury to fish and other wildlife, do not spill or empty containers into streams, ponds or any other body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

PHYSICAL OR CHEMICAL HAZARDS

FLAMMABLE
Do not use, pour, spill or store near heat or open flame. Do not cut or weld container.

DIRECTIONS FOR USE

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

STORAGE AND DISPOSAL

STORAGE
Store in a tightly-closed container in a cool place away from dwellings. Do not allow contamination of seeds, plants, fertilizers or other pesticide chemicals. Do not contaminate food, feedstuffs, drugs or domestic water supplies. In outside storage structures or sides to avoid accumulation of rain water in top or bottom recessed areas.

DISPOSAL
Rinse equipment and containers and dispose of wastes, including spills or rinsates, in a landfill approved for pesticides or by burying in noncropland away from domestic water supplies. Punch holes in containers before disposal. Dispose of empty containers in approved landfill or bury in a safe place. Consult Federal, State and local disposal authorities for approved alternative procedures.

DO NOT REUSE CONTAINER

DO NOT CUT OR WELD CONTAINER

PRECAUTIONS IN USING

IMPORTANT-NOTE CAREFULLY Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid or high in organic matter. To avoid injury to plant roots, fertilize as indicated by soil test following fumigation. To avoid ammonia injury, nitrate starvation, or both to crops, avoid using fertilizers containing ammonium salts and use only fertilizers containing nitrates until after the crop is well established and the soil temperature is above 65 F. Certain crops, including cotton, sugarcane and pineapple, are tolerant to ammonia and the above rule does not apply to them. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.

Do not store in or use containers or equipment made of aluminum, magnesium or their alloys. Store in a cool place away from dwellings. After use, always empty and clean applicator thoroughly with kerosene or diesel fuel. Avoid use of water in equipment.

Avoid [illegible] treated soil, do not use irrigation water, transplant, [illegible] or fumigant gas that could carry to the [illegible] infested land. Clean equipment carefully before [illegible]

NOTICE OF WARRANTY

SHELL CHEMICAL COMPANY MAKES NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PURPOSE, OR OTHERWISE EXPRESS OR IMPLIED, concerning this product or its use which extend beyond the statements on this label

GENERAL DIRECTIONS

Use D-D Soil Fumigant at full strength as a preplanting treatment by injection in the soil only for control of cyst (soybean golden tobacco sugar beet) root knot, root lesion or meadow, burrowing, citrus, stem and bulb, sting, ring, awl spiral lance, pin stubby root stylet dagger and other plant parasitic nematodes symphylids and wireworms Nematodes wireworms and symphylids appear on many field forage vegetable, nursery crops, grasses, ornamentals small fruits, citrus avocados nut and deciduous fruits, mint, hops sugar beets and vineyards For best results treat prior to each crop planting Do not use on heavy clay soils Avoid reinfestation of treated soil from transplants tools equipment, or crop remains from infested areas

WHEN TO TREAT

Treat in spring or fall, whenever soil conditions are suitable Soil temperature 6 inches deep should be between 40 and 80°F (Cold or wet soils retain fumigant longer Dry or hot soils release fumigant too rapidly.) Fall treatment is suggested for land to be planted to early planted crops such as celery, tomatoes and nursery stock Early fall treatment allows planting a fall cover crop.

A three-month period should be allowed before planting treated muck and heavy soils to allow complete aeration For symphylid control, time application in accordance with local, state and federal recommendations

SOIL PREPARATION

Plow to a depth of 6 to 12 inches. Disc soil thoroughly to break up clods and cut up trash Cover trash or allow to rot before fumigation Soil should be smooth and free from debris with adequate moisture for good germination Deep tillage 12 to 18 inches, often improves results, especially in heavy and muck soils

APPLICATION

OVER-ALL (BROADCAST) APPLICATION: Apply with chisel or plow-sole equipment Apply in uniform streams 10 to 12 inches apart and at least 6 to 12 inches deep in the soil. With chisel application, seal chisel channels with a drag, ring roller, or press wheel behind the applicator. With plow-sole applications, disc IMMEDIATELY to break clods and then seal with roller or drag.

ROW (BAND) TREATMENT: Adjust injection chisels to same spacing as planter Inject at least 6 to 12 inches below the final soil surface. Seal with roller or drag Plant directly in treated strips

SPLIT APPLICATION: (Use only for dosages in excess of 80 gallons per acre) Apply only half the suggested dosage wait one to two weeks and plow turning the treated soil completely over (Discing is not satisfactory.) Then apply the remainder and seal with drag or roller

CITRUS REPLANTING SITES: Space chisels 18 to 20 inches apart and inject 12 to 14 inches deep over-all

FOR DECIDUOUS ORCHARDS, FOREST AND NURSERY CROP PLANTING SITES: Treat large areas over all or in strips 10 feet wide Individual tree sites can be treated by injecting with a handgun in a 10 foot square area Inject 10 to 12 inches deep with injections spaced 12 inches apart When using a handgun seal the injection hole with the foot.

WHEN TO PLANT

Under normal conditions a waiting period of one week for each 10 gallons of D-D Soil Fumigant used on a broadcast basis should be allowed Pineapple land can be treated at time of planting.) Allow additional time before planting if temperatures are below 60°F or if there has been heavy rains

Soil treated with massive doses of fumigant before planting such as for deep rooted trees and shrub planting sites requires a 3 to 6 months waiting period Before planting plow or open planting hole to thoroughly aerate soil

BACTERIAL CANKER AND DECLINE OF PEACH TREES

Use as a pre plant treatment of light (sandy) soils using 40-60 gallons of D-D Soil Fumigant per acre Apply by chisel injections at 10-12 inch depth on 12-inch spacings Seal soil soon after treatment with ring roller or drag Soil should be warm (50-85°F) at 6 in depth moist and cultivated thoroughly before application Remove roots and other plant debris prior to treatment Fall application usually is best because of warm soil Pre irrigation may be necessary to provide sufficient moisture A waiting period of one week should be allowed for each 10 gallons of D-D Soil Fumigant used on a broadcast basis

MISCELLANEOUS USES

WHITE POTATOES IN NORTHWESTERN STATES To control quackgrass in fields to be planted to white potatoes apply D-D Soil Fumigant as a spring or preferably a fall broadcast over all treatment using 20 to 28 gallons per acre For suppression of the damaging effects of VERTICILLIUM wilt in fields to be planted to white potatoes apply D-D Soil Fumigant as a spring or preferably a fall broadcast over-all treatment using 40 to 48 gallons per acre

FIELD BINDWEED (PERENNIAL MORNINGGLORY) SUPPRESSION Use 30-50 gallons of D-D Soil Fumigant per acre over all as a spring or preferably fall treatment to aid in the control of field bindweed (perennial morningglory) on bare ground Prior to planting see section on When to Plant

MINT IN NORTHWESTERN STATES Use 40 gallons of D-D Soil Fumigant per acre as a spring or preferably a fall treatment to aid in the reduction of the damaging effects of verticillium wilt in disease infected land to be used for mint production After treatment allow at least 7 to 8 weeks or until the odor of the fumigant has left the soil before planting Consult local Agricultural Experiment Station authorities for the use of other practices such as flaming the stubble weed control and cultural practices when using D-D Fumigant as an aid in reducing damage caused by verticillium wilt

DOSAGE AND USE REQUIREMENTS

CROP	TYPE OF TREATMENT	SOIL TYPE	DOSAGE (GALLONS PER ACRE)
Field crops (tobacco[1] cotton, etc.)	Row (42")	Mineral	7½ to 10
Floral crops			
Grasses and turf		Muck or peat	15 to 20
Ornamentals	Over-all (or broadcast)		
Small fruits		Mineral	18 to 25[4]
Vegetables		Muck or peat	40[5] to 60
Sugar beets			
Root knot nematode	Row (42")	Mineral	9
	Over-all	Mineral	20
Sugar beet nematode	Row (42")	Mineral	15 to 20
	Over-all	Mineral	25 to 30
Deciduous orchards	Strip treatment	Mineral	Treat a 10 ft. wide strip in which new trees are to be planted at 40 gals/acre[7]
Forest nurseries			
Nut trees			
Ornamental nurseries[6]	Over-all	Mineral	40 to 60
Strawberries			
Vineyards			
Pineapple	Row	Mineral	40 to 60
Citrus, avocados			
Florida	Over-all	Sandy	60
California	Over-all	Sandy	60 to 100
		Loam	80 to 150
		Clay loam	120 to 200

[1] One gallon of D-D Soil Fumigant weighs 10 pounds.

[2] For symphylid control apply 30 to 40 gallons of D-D Soil Fumigant per acre in accordance with local, state and federal recomendations. To control wireworms, use dosages recommended for nematodes in broadcast treatments.

[3] TO CALIBRATE EQUIPMENT FOR TOBACCO - The following steps will help calibrate your gravity flow applicator for row treatment of tobacco to insure 10 gallons of D-D per acre. Measure 156 feet of row [illegible] Lower gate to 8 to 10 inches in soil. Place tube into pint or quart jar. Start tractor and open valve on gravity flow. After 156 feet, applicator must deliver 1 pint. This is 10 gallons per acre. If less, decrease tractor speed. If more, increase speed. Once set, maintain the same tractor speed. Calibrate each outlet separately.

[4] For cyst-forming nematodes, increase dosage to 25 to 30 gallons per acre.

[5] For muck soils containing less than 30% organic matter, reduce dosage to 30 gallons per acre.

[6] In California, consult local recommendations for specific rates on individual nursery crops.

[7] Examples: (A) If trees are to be planted in rows 20 ft. apart, only half of the area is treated (alternate 10 ft. strips), thus, only 20 gallons are applied—the part treated is at the over-all rate of 40 gallons per acre. (B) Formula for calculating dosage rate on strips:

$$\frac{\text{Width of Strip to be Treated}}{\text{Row spacing}} \times \text{Over-all Rate} = \text{Actual gallons to be applied}$$