UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

006054

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES
JUN 03 1986
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MEMORANDUM

SUBJECT: EPA File Symbol: 8123-RRO
Weed and Brush Control (Low Volatile)

FROM: Deloris F. Graham DFG 6/11/86 6/11/86
Technical Support Section
Fungicide-Herbicide Branch
Registration Division (TS-767C)

TO: Richard Mountfort, PM 23
Fungicide-Herbicide Branch
Registration Division (TS-767C)

Applicant: Frank iller & Sons, Inc.
13831 South Emerald Avenue
Chicago, IL 60627

ACTIVE INGREDIENTS:
Isooctyl Ester of 2,4-dichlorophenoxy-acetic acid 16.05%
Isooctyl Ester of 2-(2,4-dichlorophenoxy) propionic acid 16.10%
INERT INGREDIENTS: 67.85%

BACKGROUND:

Submitted Acute Oral, Acute Dermal, Acute Inhalation, Eye Irritation, Primary Dermal Irritation, and Dermal Sensitization studies. Studies conducted by Cosmopolitan Safety Evaluation, Inc. Data under Accession Numbers: 261375, 261376, 261377, 261378, 261379, and 261380. Method of support not indicated.

RECOMMENDATIONS:

1. FHB/TSS finds these data acceptable to support conditional registration of this product.

2. The appropriate signal word is CAUTION.

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LABEL:

See enclosed copy for appropriate labeling procedures and formats.

REVIEW:

(1) Acute Oral Toxicity Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413A; January 16, 1986; EPA Accession No. 261377.

PROCEDURE:

Four groups consisting of five male and five female rats each were dosed with one of the following: 2.506, 3.540, 5.0, or 7.063 g/kg of the test material orally. Observations made for 14 days postdosing. Necropsy performed on all animals.

RESULTS:

At 2.506 g/kg, 1/5 males died; at 3.540 g/kg, 3/5 males and 1/5 females died; at 5.0 g/kg, 4/5 males and 3/5 females died; at 7.063 g/kg, 5/5 males and 5/5 females died. Toxic signs reported included depressed activity, perineal staining, ataxia, and prostration. Necropsy report indicated congestion of intestines, brown viscous material contained in intestines; slightly mottled livers and pale kidneys in animals that died during studies. No abnormalities reported at necropsy of surviving animals. LD_{50} for males reported to be 3.390 g/kg with confidence limits between 2.491 and 4.632 g/kg. LD_{50} for females reported to be 4.508 g/kg with confidence limits between 3.623 and 5.609 g/kg. LD_{50} for males and females combined reported to be 3.972 g/kg with confidence limits between 3.320 and 4.751 g/kg.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: III - CAUTION.

(2) Acute Dermal Toxicity Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413B; January 16, 1986; EPA Accession No. 261380.

PROCEDURE:

Five male and five female rabbits with intact skin sites each received 2.0 g/kg of the test material dermally under occlusive wrap for 24-hour exposure. Observations made for 14 days posttreatment. Necropsy performed on all animals.

RESULTS:

No mortalities or abnormalities at necropsy reported. Moderately severe erythema reported. LD_{50} reported to be greater than 2.0 g/kg.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: III - CAUTION.

(3) Primary Dermal Irritation Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413E; January 16, 1986; EPA Accession No. 261378.

PROCEDURE:

Six rabbits with intact skin sites each were treated with 0.5 ml of the test material dermally under occlusive wrap for 4-hour exposure period. Observations made for 9 days posttreatment.

RESULTS:

At 24 hours, 6/6 had slight to well-defined erythema (1/6 = 1, 5/6 = 2) and slight to moderate edema (1/6 = 1, 2/6 = 2, 3/6 = 3). At 72 hours, 6/6 had well-defined erythema (6/6 = 2) and slight to moderate edema (2/6 = 1, 3/6 = 2, 1/6 = 3). Primary Irritation Score reported to be 1.9. Eschar formation noted at day 4 which persisted through day 8. Sloughing noted at day 7 and persisted through day 9.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: III - CAUTION.

(4) Eye Irritation Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413D; January 16, 1986; EPA Accession No. 261379.

PROCEDURE:

Six rabbits received 0.1 ml of the test material in one eye each. Observations were made for 72 hours posttreatment.

RESULTS:

At 1-hour posttreatment, 6/6 animals had conjunctive redness (6/6 = 1) and 4/6 chemosis (4/6 = 1). At 24 hours, 3/6 conjunctive redness (3/6 = 1). Irritation had cleared within 48 hours.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: III - CAUTION.

(5) Acute Inhalation Toxicity Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413C, January 16, 1986; EPA Accession No. 261376.

PROCEDURE:

Five male and five female rats were exposed for 4 hours to a 3.7 mg/L mean gravimetric concentration (nominal concentration = 11.6 mg/L). Mass median diameter ranged from 1.2 to 1.4 microns and geometric standard deviation ranged from ± 2.5 to ± 2.8 microns. Ambient chamber temperature reported to be 74 °F and relative humidity 74 percent. Observations made for 14 days postexposure. Necropsy performed on all animals.

RESULTS:

No mortalities, abnormalities at necropsy, or toxic signs reported. Wetting of the fur noted during exposure. LC_{50} reported to be greater than 3.7 mg/L gravimetric concentration.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: III - CAUTION.

(6) Dermal Sensitization Study: Cosmopolitan Safety Evaluation, Inc.; Study #1413F; January 16, 1986; EPA Accession No. 261375.

PROCEDURE:

Ten male guinea pigs received 0.5 ml topical applications of the test material once a week for 3 weeks during induction phase. T o weeks after third induction-phase application, a 0.5 ml challenge dose was applied to each animal. Observations made at 24 and 48 hours after each application. At challenge dose, both the treated skin site and a virgin skin site were challenged.

RESULTS:

Slight to well-defined erythema and slight edema at 24 and 48 hours after first, second, and third applications; 1/10 animals had well-defined edema after third application during induction phase. At challenge dose, treated and virgin skin skites showed slight erythema and edema at 24 and 48 hours after challenge. Therefore, it is concluded that the product is a primary irritant, but not a sensitizing agent.

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STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: Nonsensitizing.

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WEED AND BRUSH CONTROL
(Low Volatile)

ACTIVE INGREDIENTS:	
*Isooctyl Ester of 2,4-dichlorophenoxyacetic Acid	16.05%
**Isooctyl Ester of 2-(2,4-dichlorophenoxy) propionic Acid	16.10%
INERT INGREDIENTS:	67.85%
TOTAL	100.00%

*2,4-dichlorophenoxyacetic Acid Equivalent 10.6%, .92 lbs./gal.
**2-(2,4-dichlorophenoxy) propionic Acid Equivalent 10.9%, .94 lbs./gal.
**Isomer Specific by AOAC Method No. 6-D01.5

CAUTION

KEEP OUT OF REACH OF CHILDREN.
See Side Panel For Additional Precautionary Statements.

ONLY FOR SALE TO, USE AND STORAGE BY LAWNCARE, LANDSCAPING PERSONNEL, AGRICULTURAL, PROFESSIONAL AND SERVICE PERSONS.

GENERAL INFORMATION

LAWNS AND OTHER ORNAMENTAL TURF GRASS AREAS: This product is recommended for control of broadleaf weeds in lawns and similar turf areas. This treatment may injure bentgrass, St. Augustinegrass, centipedegrass, carpetgrass and newly seeded lawns. If necessary to control weeds in such turf, use half the recommended rate in chart and repeat application in 2 to 3 weeks. Do not use on bentgrass greens or tees.

The following is a partial list of weeds controlled in turf by this product.

MORE SUSCEPTIBLE WEEDS:

Black medic	Chickweeds (common mousear)	Dandelion	Healall	Little starwort	Plantains (narrow or buckhorn; broadleaf)
Buttercup	Clovers	*English daisy	Henbit	Oxalis (wood sorrel)	*Spurge
Cudweed		Ground ivy	Knotweed		

*Treat in spring and again in fall.

LESS SUSCEPTIBLE WEEDS:

Bindweed	Falsedandelion	Kochia	Pigweed	Vervain	Wild carrot
Dock	Fleabane	Lambsquarters	Poorjoe	Vetch	Wild lettuce
Eveningprimrose	Florida pusley	Mallow	Ragweed	Violet	

This product is NOT effective on perennial veronicas or on weed grasses.

BRUSH CONTROL ON UTILITY RIGHT-OF-WAY, ALONG HIGHWAYS AND SOLID STANDS OF OAK OR ELM: This product is specifically designed for utilities and other industrial users to control woody plants. This product also controls many noxious perennial weeds on uncropped land, such as along highways and drainage ditch banks.

Alder	Brambles	Gooseberry	Osage orange	Red elm	Sumac
Ash	Buckbrush	Hemlock	Palmetto	Red maple	Sycamore
Aspen	Elderberry	Greenbrier	Pine	Salmonberry	Tulip poplar
Birch	Elm	Gum	Poison ivy	Sand Sagebrush	Wild cherry
Blackberry	Ceanothus	Honeysuckle	Poison oak	Serviceberry	Wild grape
Black cherry	Chamise	Locust	Poplar	Shinnery oak	Willow
Blackjack oak	Coffeeberry	Manzanita	Red elder	Snowberry	Winged elm
Black locust	Currant	Maple	(and many other species)	Spruce	Yerba santa
Box elder	Fir	Oak			

NOTE: Local conditions and application regulations vary and may affect use of this herbicide. Consult local agricultural experiment station or extension service weed specialists and state regulatory agencies for recommendations in your area.
NOTE: When stored at temperatures below freezing, it may be necessary to warm contents to 45° F and mix thoroughly before using.

E.P.A. REG. NO. 8123-
E.P.A. EST. NO. 8123-IL-1

NET CONTENTS: _____ BATCH NO. _____

SOLD BY
FRANK MILLER & SONS, INC.
13831 S. Emerald Avenue
Chicago, Illinois 60627

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed or absorbed through the skin. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention. Wash exposed skin gently with plenty of soap and water. If swallowed do NOT induce vomiting. If vomiting occurs spontaneously, keep airway clean. Never give anything by mouth to an unconscious person. Seek medical attention.

ENVIRONMENTAL HAZARDS

Do NOT apply directly to water. Do NOT contaminate water by cleaning of equipment or disposal of wastes. Do NOT contaminate irrigation ditches or water used for domestic purposes. This product is toxic to fish. Use care to avoid spray contact or drift to 2,4-D susceptible plants such as cotton, tomatoes, flowers, grapes, fruit trees and ornamentals. Do NOT permit spray mist containing this product to drift onto them, since even very small quantities of the spray, which may not be visible, can cause severe injury during both growing and dormant periods. Do NOT spray when the wind is blowing towards susceptible crops or ornamental plants. Use coarse sprays to minimize drift. Spray drift can be lessened by keeping the spray boom as low as possible by applying 20 gallons or more spray per acre: by using no more than 20 pounds spraying pressure with flat fan or flooding flat fan nozzle tips: by spraying when wind velocity is low: and by stopping all spraying when wind exceeds 6 to 7 miles per hour. Do NOT apply with hollow cone-type insecticide or other nozzles that produce a fine droplet spray. Although this product is much less volatile than butyl or isopropyl esters, at high temperatures (above 95° F.) vapors from this product may injure susceptible plants growing nearby. Do NOT use in a greenhouse. Flush sprayer out on suitable non-crop area after use. Do NOT use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result.

NOTE: Do NOT graze dairy animals on treated areas within 6 weeks after application.

Do NOT graze meat animals on treated areas within 2 weeks of slaughter.

Read entire label before using this product.

DIRECTIONS FOR USE:

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

STORAGE AND DISPOSAL

Do not contaminate water, food by storage or disposal.

STORAGE: Do not expose to temperatures. Do not stack more than four drums high. Drums should be opened in well ventilated areas. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use. Store away from other pesticides, fertilizer, food and feed.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at your EPA Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). 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.

PREPARATION OF THE SPRAY: Fill the spray tank with half the required amount of water, then add the recommended amount of this herbicide anytime broadleaf weeds are growing actively. Dandelion, plantain, wood sorrel and clovers are best treated in the fall or in spring before flower heads develop. Winter weeds such as chickweeds and henbit should be treated in early spring.

LAWNS: Summer weeds such as oxalis, knotweed and spurges should be sprayed when they are small. In areas with extended growing seasons, such as California, treatment in both spring and fall may be needed to control more resistant species. Lawns to be over-seeded in the fall should be treated at least 4 weeks before the planned seeding date. Rainfall (1/4 inch or more) or irrigation should follow treatments. Fall-seeded lawns may be treated the following spring. Spring-seeded lawns may be treated after the grasses have sprouted and been cut at least twice, generally 6 to 10 weeks after seeding, depending on germination and growth rate.

For established lawns, fall treatment fits into a good turf management program. Proper fertilization and mowing should be combined with chemical weed control to thicken the turf after weeds have died and to discourage more weeds from invading.

HOSE ATTACHED SPRAYERS (LAWNS MODELS): Use 1½ tablespoons of this herbicide diluted with water to the 3 to 5 gallon mark on the sprayer jar for each 500 square feet (25' x 20') of lawn area to be sprayed. Adjust water pressure so that spray streams about 10 - 15 feet with no misting.

AMOUNTS TO USE:

Herbicide	Area Covered	Water Volume
3 oz.	1,000 sq. ft.	1 gal.
1 pt.	5,000 sq. ft.	5 gals.
1 qt.	10,000 sq. ft.	10 gals.
1 gal.	40,000 sq. ft.	40 gals.

This product may be used as a woody plant herbicide for control of many noxious perennial weeds on non-cropland such as along highways and drainage ditches.

FOLIAGE STEM TREATMENT: This is the standard method for high volume sprays along fence rows, highways and rights-of-way. Use as a first spray on thick brush composed of mixed species. Apply to both stems and foliage from the time foliage is completely matured until the plants start to go dormant. All leaves, stems and suckers must be completely wet to the ground line for effective control. Some regrowth may be anticipated on the more resistant species, such as oak, maple and ash. Add 2 to 3 gallons of this product to 100 gallons of water using 200 to 600 gallons of spray mixture per acre, depending upon the height and thickness of the brush. Mix thoroughly before spraying.

BASAL BARK TREATMENT: Thoroughly wet the base and root collar of all stems until the spray accumulated around the root collar at the ground line. This spray may be applied during any season. Use this product for basal bark treatment on scattered brush or as a second spray application on species resistant to first foliage application. Mix 6 to 8 gallons of this product in 100 gallons of oil. Apply with a low-volume sprayer or power equipment. Application rate will depend on the species present, season applied and volume of spray used. Use a coarse spray to avoid drift.

MODIFIED BASAL TREATMENT: Drench the base of plants, then wet the lower 4/5 of remaining stems and leaves thoroughly to run-off. Apply treatment when brush is in full foliage. This method can be applied where susceptible species have been controlled by prior sprays and more resistant species, such as maple and oak, remain. Soaking the base of the plant and wetting all stems to run-off is absolutely necessary for complete control.

EARLY SEASON SPRAYING: Add 2 to 3 gallons of this product in 10 gallons of diesel oil and thoroughly mix. Add this mixture to 88 gallons of water.

DURING DRY WEATHER OR THE LATTER PART OF SPRAYING SEASON: Add 3 gallons of this product to 16 gallons of diesel oil and mix thoroughly. Add mixture to 81 gallons of water and agitate thoroughly before use to insure uniform mixing. Do NOT allow mixture to stand more than 1 hour after mixing.

CUT SURFACE TREATMENT: STUMPS: This treatment may be used anytime of the year; however, it is more effective when applied as quickly as possible after trees are cut. Spray the entire stump, especially exposed roots and bark. A complete soaking is essential for effective control. Use this procedure after original or capital removal. It is the first step towards a chemical brush control program on newly cleared highways and rights-of-way. The spray is most effective and profitable on stumps 3 to 4 inches or larger. Mix 6 to 8 gallons of this product in 100 gallons of oil. Applications should be made with a low-volume knapsack sprayer using a solid cone shaped nozzle of medium orifice.

FRILL: Make a frill using an axe to cut overlapping V-shaped notches in a continuous ring, and cut around the trunk near its base. Cut through the bark, but do not remove the chips: This method is recommended for all trees 5 to 6 inches in diameter and larger. Freshly cut frills can be treated anytime of the year. Mix 6 to 8 gallons of this product in 100 gallons of oil. Pour in as much of the mixture as the frills will hold without wasting the chemical.

WARRANTY AND LIMITATION OF DAMAGES: Seller warrants that this material conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use and Buyer assumes the risk of any use contrary to such directions. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO EXCEPT IN WRITING WITH A SPECIFIC REFERENCE TO THIS WARRANTY. In no event shall Seller's liability for any breach of warranty exceed the purchase price of the material as to which a claim is made.