2,4-D/TOX (47)

315
559
295

April 24, 1981

Trimec Bermuda and Bentgrass Broadleaf Lawn Herbicide
EPA Registration No. 2217-597

Released 001174

Sherell A. Sterling
FHB/TSS

Richard Mountfort
Product Manager (23)

Registrant: PBI/Gordon Corporation
300 South Third Street
Kansas City, KS 66118

Active Ingredient
2,4-D,dimethylamine salt 6.25%
MCPP, dimethylamine salt 10.83%
Dicamba, dimethylamine salt 1.20%

Background: These eye irritation studies were submitted in response to an earlier review (see Sterling, 1/21/80). The intent of the studies was to substantiate the labeling comment "... washing of eyes has shown to be of doubtful value ....". The method of support was not indicated.

The studies submitted on February 22, 1980 were conducted on several formulations. Testing was done by Midwest Research Institute of Kansas City, Missouri and Stillmeadow, Inc. of Houston, TX.

Recommendations:

1. The studies submitted were adequate and acceptable for the formulations tested. However, the "Trimec Bermuda and Bentgrass Broadleaf Lawn Herbicide" (EPA Reg. No. 2217-597) formulation was not tested. The formulations tested are not substantially similar to EPA Reg. No. 2217-597. FHB/TSS has therefore determined that adequate "eyewash" data have not been submitted on this product. We hasten to add that data available are adequate for conditional registration purposes.

2. FHB/TSS is of the opinion that eyewash data on the formulation or a substantially similar formulation are lacking; therefore, the statement that the eyewash is of "doubtful value" has not been substantiated.

3. FHB/TSS recommends that the entire "Note" section under the "Statement of Practical Treatment" be deleted. In addition, it is the opinion of FHB/TSS that since the eyewash has not been proven more harmful for this product, the eyewash is appropriate for practical treatment. The "Note" is inappropriate as it detracts from the basic reason for the "Practical Treatment" statement-- to provide emergency treatment information to be used by non-medical people until medical personnel can be reached.

4. FHB/TSS notes that data for "2,4-D (Iso-octyl ester)" was not submitted under MRI Project #4823-B(1) as the title of the study indicates.

Labeling Recommendations:

1. The signal word "DANGER" is appropriate, as proposed.

2. The "Environmental Hazard" section must be revised as follows:

   Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

3. The statement "Do not apply when weather conditions favor drift from target areas" must be relocated under the "Directions for Use" section.

4. The statement "Keep from freezing" should be located under the "Storage" direction in the "Storage and Disposal" section.

Review:

1. Rabbit Eye Irritation; Stillmeadow #1344-79; October 17, 1979; Acc. No. 244753

   Procedure: 9 New Zealand white rabbits each received 0.1 ml of "EH 600" in one eye. The test substance "EH 600" is composed of the following active ingredients:

   2,4-D, DEA salt 23.54%
   MCPP, DEA salt 15.69%
   Banvel, DEA salt 3.92%

   Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored through day 21.

   Result: Upon instillation, 3/6 in unwashed group vocalized. All eyes showed red blister in conjunctival sac at 1 hour. At 24 hours, the unwashed eyes exhibited corneal opacity in 1/6=5, 2/6=20, 1/6=30; iris irritation is 6/6=10; conjunctival redness in 6/6=2; chemosis in 2/6=3, 4/6=4; discharge in 4/6=2, 2/6=3; also noted were necrosis (6/6) and corneal stippling (5/6). One animal found dead on day 7. Day 21, unwashed eyes exhibited corneal opacity in 1/5=10, 1/5=20, 1/5=30 1/5=40; iris irritation in 2/5=5, 3/5=10; redness in 2/5=1, 3/5=2; chemosis in 2/5=2, 2/5=3, 1/5=4; discharge in 2/5=1, 3/5=2; also cornea invaded by blood vessels (5/5), corneal swelling (2/5); ptosis around eye (1/5).

   Upon instillation 1/3 animals with washed eyes vocalized; red blisters seen in conjunctival sac of 3/3 rabbits. After 24 hours, washed eyes showed corneal opacity in 1/3=30, 2/3=40; iris irritation in 3/3=10; redness in 3/3=2; chemosis in 1/3=3, 2/3=4; discharge in 3/3=2; necrosis and corneal stippling in all rabbits. At 7 days, corneal opacity in 3/3=10, cornea invaded by blood vessels; iris irritation in 3/3=10; redness in 3/3=2; chemosis in 2/3=3, 1/3=4; discharge in 1/3=1, 1/3=2, 1/3=3; necrosis and stippling in 3/3. By day 21, corneal opacity in 1/3=5, 1/3=40; also invasions of cornea by blood vessels, swollen cornea; iris irritation in 1/3=10; redness in 3/3=1,chemosis in 1/3=1, 2/3=2; discharge in 1/3=2.

Study Classification: Core Guideline Data.

Toxicity Category: I-DANGER

2. Rabbit Eye Irritation; Stillmeadow #1340-79; Oct. 15, 1979; Acc. No. 244753

Procedure: 9 New Zealand white rabbits each received 0.1 ml of "EH 599" in one eye. The test substance "EH 599" is composed of the following active ingredients:

2,4-D, DMA salt 20.71%
MCPP, DMA salt 20.76%
Banvel, DMA salt 3.52%

Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored through day 21.

Results: Red blister developed in conjunctival sac of 6/6 rabbits at 1 hour. At 24 hours in unwashed eyes, no corneal opacity; iris irritation seen in 6/6=10; redness in 2/6=2, 4/6=3; chemosis in 6/6=4; discharge in 4/6=2, 2/6=3; stippling and necrosis also observed. At day 21, unwashed eyes exhibited corneal opacity in 2/6=15, 1/6=20, 2/6=30, 1/6=40; iris irritation in 6/6=10; redness in 4/6=1, 2/6=2; chemosis in 6/6=3; discharge in 1/6=1,5/6=2; also, invasion of blood vessels into cornea and corneal swelling.

Washed eyes exhibited red blisters in conjunctival sac at 1 hour. At day 21 corneal opacity in 1/3=20, 1/3=40; iris irritation in 2/3=10; redness in 1/3=1, 1/3=2; chemosis in 1/3=3, 1/3=4; discharge in 1/3=1, 1/3=2; necrosis in 1/3.

Study Classification: Core Guideline Data.

Toxicity Category: I-DANGER

3. Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials EH 595 and EH 601; MRI# 4823-B(2); Jan. 2, 1980; Acc. No. 244753

Procedure: 9 New Zealand rabbits each received 0.1 ml of "EH 595" in one eye. Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored at 24, 48, 72 hours; 4, 7, 8, 9, 11, 14 days.

Results: At 24 hours the unwashed eyes exhibited corneal opacity in 5/6=20; redness in 5/6=2; chemosis in 2/6=2, 3/6=3; discharge in 1/6=2, 4/6=3. At day 7, the unwashed eyes showed redness in 1/6=1; chemosis in 3/6=2, discharge in 1/6=1. By day 14, only irritation was chemosis in 3/6=1.

redness in 2/3=1, 1/3=2; chem

The washed eyes at 24 hours exhibited corneal opacity in 2/3=20, 3/3=2; discharge in 1/3=1, 1/3=2, 1/3=3. By day 14, only irritation noted was chemosis in 1/3=1.

Study Classification: Core Minimum Data. Study should be continued until all scores are 0, or 21 days.

Toxicity Category: II-WARNING

4. Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Material EH 595 and EH 601; MRI #4823-B(2); Jan. 2, 1980; Acc. No. 244753

Procedure: 9 New Zealand white rabbits each received 0.1 ml of "EH 601" in one eye. Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored at 24, 48, 72 hours; 4, 7, 8, 9, 11, 14, 15, 17 and 21 days.

Results: The unwashed eyes at 24 hours exhibited corneal opacity in 6/6=20; iris irritation in 2/6=5, 1/6=10; conjunctival redness in 4/6=2, 2/6=3; chemosis in 4/6=2, 2/6=3; discharge in 3/6=2, 3/6=3. Only 3 animals scored through day 21; other animals' irritation had cleared. At 21 days, corneal opacity observed in 3/3=20; iris irritation in 3/3=5; redness in 3/3=2; chemosis in 3/3=2; discharge in 2/3=2, 1/3=3.

At 24 hours, the rinsed eyes showed corneal opacity in 3/3=20; redness in 2/3=1, 1/3=2; chemosis in 2/3=2, 1/3=3; discharge in 1/3=1, 1/3=2, 1/3=3. By day 7, corneal opacity seen in 1/3=20; redness in 2/3=1, 1/3=2; chemosis in 2/3=2, 1/3=3; discharge in 1/3=1, 1/3=2, 1/3=3. At day 14 (the last scores recorded) only irritation noted was chemosis in 1/3=1.

Study Classification: Core Minimum Data.

Toxicity Category: I-DANGER

5. Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials 881 (Dimethylamine), 2,4-D (Dimethylamine), and 2,4-D (Iso-Octyl ester); MRI #4823-B(1); Nov. 12, 1979; Acc. No. 244753

Procedure: 9 New Zealand white rabbits each received 0.1 ml of "881 (Iso-octyl ester)" in one eye. Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored at 24, 48, 72 hours; 7, 10, 13, 14, 17, 21 days.

Results: Unwashed eyes at 24 hours exhibited redness in 6/6=1; chemosis in 5/6=2, 1/6=3; discharge in 4/6=1, 1/6=2, 1/6=3. At 3 days, corneal opacity in 2/6=20, 2/6=40; iris irritation in 3/6=1; redness in 4/6=1; chemosis in 3/6=1, 2/6=2; discharge in 3/6=1, 2/6=2. All eyes appeared clear by day 7.

Washed eyes exhibited no irritation at 24 hours. At day 2, iris irritation in 1/3=5; redness in 1/3=1; chemosis in 1/3=1; discharge in 1/3=1. All eyes were clear by day 4. 00117

Study Classification: Core Guideline Data.

Toxicity Category: II-CAUTION

6. Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials 881 (Iso-octyl ester), 881 (Dimethylamine), 2,4-D (dimethylamine), and 2,4-D (Iso-octyl ester); MRI #4823-B(1); Nov. 12, 1979; Acc. No. 244753

Procedure: 9 New Zealand white rabbits each received 0.1 ml of "2,4-D (dimethylamine)" in one eye. Three eyes were rinsed 30 seconds after treatment with room temperature tap water for one minute. Eyes scored at 24, 48, 72 hours; 4, 7, 14 and 21 days.

Results: At 24 hours the unwashed eyes showed corneal opacity in 5/6=20, 1/6=40; iris irritation in 6/6=5; redness in 4/6=1, 2/6=2; chemosis in 4/6=2, 2/6=3; discharge in 1/6=1, 4/6=2, 1/6=3. By day 21, corneal opacity in 2/6=20, 1/6=60, 1/6=80; iris irritation in 2/6=1, 2/6=2; redness in 2/6=2, 2/6=3; chemosis in 2/6=2, 2/6=4; discharge in 2/6=2, 2/6=3.

The washed eyes at 24 hours exhibited corneal opacity in 2/3=20; iris irritation in 2/3=5; redness in 1/3=1, 2/3=2; chemoisis in 1/3=1, 1/3=2, 1/3=4; discharge in 3/3=3. Corneal opacity in 1/3=20; ~~iris irritation in 1/3=20; iris irritation in 1/3=5; redness in 1/3=20;~~ iris irritation in 1/3=5; redness in 1/3=2; chemosis in 1/3=2; discharge in 1/3=1 at 21 days.

Study Classification: Core Guideline Data.

Toxicity Category: I-DANGER

7. Primary Eye Irritation Studies in Rabbits Using PBI/Gordon Corporation Test Materials 881 (Iso-octyl ester), 881 Dimethylamine), 2,4-D (Dimethylamine), and 2,4-D (Iso-octyl ester); MRI #4823-B(1); Nov. 12, 1979; Acc. No. 244753.

Procedure: 9 New Zealand white rabbits each received 0.1 ml of "881 Dimethylamine" in one eye. Three eyes were rinsed 30 seconds after treatment with room temperature tap water

for one minute. Eyes scored at 24, 48, 72 hours; 4, 7, 14, 21 days.

Results: At 24 hours the unwashed eyes showed corneal opacity in 1/6=10, 3/6=40, 1/6=45; iris irritation in 3/6=5, 2/6=10; redness in 3/6=1, 3/6=2; chemosis in 1/6=2, 5/6=3; discharge in 6/6=3. By 21 days, corneal opacity in 4/6=40, 1/6=80; iris irritation in 4/6=5, 1/6=10; redness in 4/6=2, 1/6=3; chemosis in 4/6=2, 1/6=4; discharge in 4/6=2, 1/6=3.

The washed eyes exhibited corneal opacity in 3/3=10; iris irritation in 1/3=5, 2/3=10; redness in 2/3=1, 1/3=3; chemosis in 1/3=2, 2/3=3; discharge in 1/3=2, 2/3=3 at 24 hours. At 21 days, corneal opacity in 1/3=20; iris irritation in 1/3=5; redness in 2/3=2; chemosis in 1/3=2; discharge in 1/3=2.

Study Classification: Core Guideline Data.

Toxicity Category: I-DANGER

00117

General Information:
Bermuda & Bentgrass Broadleaf Lawn Herbicide kills 33 troublesome common lawn weeds, including poison ivy, in both northern and southern grasses. This concentrated formulation covers up to 16,000 sq. ft. per quart.

WEEDS KILLED
Bedstraw
Black Medic
Buckhorn
Burdock
Chicory
Chickweed
Clover
Dandelion
Dock
Ground Ivy
Heal-All
Henbit
Knotweed
Lambsquarters
Lespedeza
Mallow
Morningglory
Pepperweed
Pigweed
Plantain
Poison Ivy
Poison Oak
Purslane
Ragweed
Sheep Sorrel
Shepherdspurse
Speedwell
Spurge
Wild Carrot
Wild Garlic
Wild Lettuce
Wild Onion
Yarrow
and many other similar broadleaf weeds

BERMUDA & BENTGRASS
BROADLEAF LAWN HERBICIDE

Kills 33 Troublesome Weeds in Lawns

Active Ingredients	
*Dimethylamine salt of 2,4 dichlorophenoxyacetic acid	6.25%
**Dimethylamine salt of 2-(2-methyl-4-chlorophenoxy) propionic acid	10.83%
***Dimethylamine salt of dicamba (3,6 dichloro-o- anisic acid)	1.20%
Inert Ingredients	81.72%
Total	100.00%

This product contains
*0.45 lbs. 2,4-dichlorophenoxyacetic acid per gallon or 5.20%
**0.78 lbs. 2-(2-methyl-4-chlorophenoxy) propionic acid per gallon or 8.95%
***0.087 lbs. 3,6-dichloro-o-anisic acid per gallon or 1.00%

KEEP OUT OF REACH OF CHILDREN

DANGER

Keep from Freezing

See side panel for additional precautionary statements and notes on first aid treatment.

One quart covers 8,000 to 16,000 sq. ft.

Net contents ONE QUART

PRECAUTIONARY STATEMENTS

Hazards to Humans & Domestic Animals

DANGER—Corrosive. causes eye damage. Do not get in eyes or on skin or clothing. Wear goggles or face shield when handling. Harmful if swallowed or inhaled. Avoid exposure to spray mist. Wash thoroughly after handling.

Statement of Practical Treatment:

FIRST AID—In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Consult a physician immediately.

NOTE: Washing of eyes is considered normal first aid procedure. In animal studies with this product, washing of eyes has shown to be of doubtful value. Therefore extreme care should be taken to avoid eye contact. If eye contact occurs, a physician should be consulted without delay.

Environmental Hazards

Keep out of lakes, streams and ponds. Do not apply when weather conditions favor drift from target area.

DISPOSAL:
Do not reuse empty container. Wrap container and put in trash collection.

EPA Reg. No. 2217-597
EPA Est. No. 2217-KS-1

U.S. Patent No. 3,284,186

849-1077

Mfd. by pbi/gordon corporation
KANSAS CITY, KANSAS 66110

BERMUDA & BENTGRASS BROADLEAF LAWN HERBICIDE

Directions for use:
It is a violation of federal law to use this product in a manner inconsistent with its labeling.

When to Use:
Spray at any time when weeds are growing. For best results, apply in spring when weeds are small and growing rapidly. Apply in fall to remove late germinating weeds.

How to Use:
Hose-end sprayer. Add amount of product shown in Rate Chart to sprayer. Then fill sprayer with water to proper level. For example, to treat 1,000 sq. ft. of bermudagrass lawn with 5 gals. of spray, measure 2⅔ fluid oz., pour into sprayer and fill with water to the 5 gal. mark. Spray uniformly.

Pressure sprayer. Add amount of product shown in Rate Chart to sprayer. Then add 1 gal. of water for every 500 sq. ft. to be sprayed. For example, to treat 1,000 sq. ft. of bluegrass at the high rate listed, measure 4 oz., pour into sprayer and fill with water to the 2 gal. level. Adjust spray nozzle to deliver coarse spray. Spray uniformly.

If hardy weeds persist in sensitive grasses, spot treat individual weeds using 1 teaspoon of product in 1 qt. of water. Minimize contact on grass.

Rate Chart for Amount to Use (Use Convenient Measuring Cap)

Area to Treat	Lawn Grass		
	St. Augustine-grass Centipede-grass	Bermudagrass Bentgrass	Bluegrass Fescue, Zoysia-grass
1,000 sq. ft.	2 oz.	2⅔ oz.	2⅔- 4 oz.
2,000 sq. ft.	4 oz.	5⅓ oz.	5⅓- 8 oz.
5,000 sq. ft.	10 oz.	13⅓ oz.	13⅓-20 oz.
8,000 sq. ft.	16 oz.	21⅓ oz.	21⅓-32 oz.

Use Precautions: Use only lawn sprayer that delivers coarse spray to reduce drift. Avoid spray drift to vegetables, flowers, ornamental plants, shrubs, trees, and other desirable plants. Do not spray carpetgrass, dichondra, or lawns where desirable clovers are present. Do not spray while grass is emerging from dormancy. Do not apply to newly seeded lawn grasses until well established. Do not spray when air temperature exceeds 85°F. Seed can be safely sown 3 to 4 weeks after application. Do not contaminate domestic or irrigation waters. After using this product clean sprayer with soap or detergent and water, and rinse thoroughly before applying other pesticides. Failure to follow the above precautions may result in injury.