

Shaughnessy Number: 125401

Date Out of EAB: 4-27-88

TO: Rob Forrest
Product Manager 21
Registration Division (TS-767C)

FROM: Patrick Holden, Team Leader *C.E.d. for*
Ground-Water Team
Exposure Assessment Branch/HED (TS-769C)

THRU: Paul F. Schuda, Chief *Paul F. Schuda*
Exposure Assessment Branch/HED (TS-769C)

Attached, please find the EAB review of:

Reg./File #: 88-LA-02

Chemical Name: Dimethazone */ common d*

Type Product: Herbicide

Company Name: FMC Corporation

Purpose: Application for specific exemption under FIFRA Section
18.

Date Received: 4/1/88

ACTION CODE: 510

Date Completed: 4/18/88

EAB #(s): 80629

Monitoring study requested:

Total Review Time: 16 hr

Monitoring study voluntarily:

Deferrals To: Ecological Effects Branch
 Residue Chemistry Branch
 Toxicology Branch

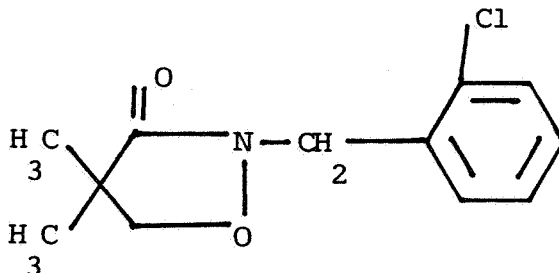
APPLICATION FOR EXEMPTION UNDER
FIFRA SECTION 18

1. CHEMICAL:

Chemical name: 2-(2-chlorophenyl)-methyl-4,4-dimethyl-3-isoxazolidinone

Common name: Dimethazone (FMC 57020)

Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Review of application for specific exemption in accordance with FIFRA Section 18 .

4. STUDY IDENTIFICATION:

Title: Letter dated 3/25/88 with attachment titled "Application for Specific Exemption in Accordance with Section 18 of the Amended FIFRA" from Bob Odom, Commissioner of Agriculture & Forestry, State of Louisiana, to Douglas Campt, Director of Pesticide Programs, U.S. EPA.

Submitted by: Bob Odom, Commissioner
Louisiana Department of Agriculture and Forestry
P.O. Box 94302
Baton Rouge, LA 70804-9302

Identifying No.: 88-LA-02
Action Code: 510
Accession Number: Not given
Record Number: 218,999
Date Sent to HED: 4/1/88

5. REVIEWED BY:

W. Martin Williams
Hydrologist
OPP/HED/EAB/Ground-Water Team

Signature: W. Martin Williams

Date: 4/26/88

795

6. APPROVED BY:

Patrick Holden
Team Leader
OPP/HED/EAB/Ground-Water Team

Signature: Catherine E. J. J.

Date: 4/26/88

7. CONCLUSIONS:

Dimethazone is both mobile and persistent in soil and water. Proposed useage areas incorporate a wide spectrum of hydrogeologic variation. Many of these areas display high rainfall, shallow water tables, and permeable soils and are extremely vulnerable to ground-water contamination. Subsequently, there is a significant potential to leach to ground water in certain areas proposed in the emergency exemption — even under the present registration for soybeans.

8. RECOMMENDATIONS:

It is recommended that Toxicology Branch be consulted for toxicological concerns. If desired, Registration Division, Toxicology Branch and the Ground-Water Team (Exposure Assessment Branch) can meet to discuss ground-water concerns for both present registration and the exemption request. If toxicological concerns exist, the use of dimethazone is not recommended in the following geological formations in Louisiana: Sparta, Prarie Terraces, Braided Stream Terraces, and High Terraces. If toxicological concerns exist, the Ground-Water Team recommends a retrospective ground-water monitoring study be conducted to address existing uses.

9. BACKGROUND:

The applicant requests the use of Clomazone for the preemergence control of broadleaf weeds and grasses in sweet potatoes from April 15, 1988 to July 15, 1988. Deficiencies of alternative methods of control are discussed in the application. The application proposes use in the parishes of Avoyelles, Bienville, Evangeline, Franklin, Grant, Morehouse, Rapides, St. Landry, St. Martin, West Carroll, and West Feliciana. Clomazone is presently registered for use in Louisiana on soybeans. Label restrictions on use are given for proximity to Towns and commercial agricultural productions: vegetable, fruit, nurseries, and greenhouses. No label restrictions are given for hydrogeologic conditions.

10. DISCUSSION:

Table 1 compares soil and chemical attributes for dimethazone (1) to criteria used to assess leaching potential (2). Table 1 clearly illustrates that dimethazone has a moderate to high potential for mobility and is persistent.

The parishes proposed for use are dispersed throughout the state of Louisiana with the exception of the far western parishes bordering Texas and the coastal parishes in the extreme southern part of the state. These proposed areas vary in soil type, annual precipitation, water table depths, and geologic formation.

TABLE 1.
LEACHING ASSESSMENT FOR DIMETHAZONE

PROPERTY	RANGES	CRITERIA	ASSESSMENT
ADSORPTION PARTITION COEFF.	1.54 - 6.85	<5.0, <1.0 OR 2.0	MODERATE TO SIGNIFICANT
SOLUBILITY	1110 PPM	>30 PPM	SIGNIFICANT
HYDROLYSIS HALF-LIFE	STABLE	>25 WEEKS	SIGNIFICANT
PHOTOLYSIS HALF-LIFE	SOIL - STABLE WATER - 88 DAYS	>1 WEEK	SIGNIFICANT
AEROBIC SOIL HALF-LIFE	28 - 173 DAYS	>2-3 WEEKS	SIGNIFICANT
HENRY'S LAW CONSTANT	4.09 E-8 ATM-M3/MOL	<1.0 E-2 ATM-M3/MOL	SIGNIFICANT

OVERALL ASSESSMENT: DIMETHAZONE IS BOTH MOBILE AND PERSISTENT

COMPUTATION OF HENRY'S LAW CONSTANT:

$$K_H = C_S / P$$

$$P = \text{VAPOR PRESSURE} = 1.44 \text{ E-4 TORR} = 1.895\text{E-7 ATM}$$

$$C_S = \text{SOLUBILITY} = 1110.0 \text{ PPM} = .00111 \text{ GM/M3}$$

$$= .00111 \text{ GM/M3} \times (1 \text{ MOLE}/239.7 \text{ GM}) = 4.631 \text{ MOLE/M3}$$

$$K_H = C_S/P = 4.631 / 1.895\text{E-7} = 2.444 \text{ E 7 MOL/(M3-ATM)}$$

$$1/K_H = 4.092 \text{ E-8 (M3-ATM/MOL)}$$

Much of the state consists of Mississippi River and Red River alluviums which can be characterized as fine silty loams and silty clays. Braided Stream Terraces, High Terrace and Sparta formations consist of very permeable coastal plain sands and gravels. Boyles, Franklin, West Feliciana, and the northeast corner of West Carroll parishes contain substantial amounts of these soils and are particularly vulnerable to leaching. Table 2 presents a vulnerability assessment for each proposed parish based on generalized soil properties (3), geology (4), and conversations with the Louisiana Geological Survey (5).

Rainfall in Louisiana is substantial with average annual precipitation ranging from 40+ inches in the north to 60 inches in the southern part of the state (5).

Seasonal high water tables are generally shallow throughout the state. Water tables usually reside within several feet of the ground surface in the coastal plains, floodplains, and alluvial geologic formations (5). In the prairie terraces and upland geological formations, seasonal high water tables in winter tend to lie within several feet of the surface. Seasonal low water tables are often 85 - 90 feet in the prairie terraces and exceed 50 feet in the uplands (5).

Based on the varied hydrogeologic conditions of the parishes proposed for use, the vulnerability assessments of the Louisiana Geological Survey, and the mobility and persistence of dimethazone in the types of soils found in the proposed use areas of Louisiana, there is a very real potential of dimethazone to contaminate ground water. Toxicological impacts should be discussed with the Toxicology Branch. If toxicological concerns are insignificant, emergency exemption may be justified. However, if toxicological impacts are significant, existing registration without hydrogeological label restrictions needs to be questioned. However, it is realized that toxicological assessments are difficult to make without any knowledge of potential contamination levels. The Exposure Assessment Branch has no confirmed reports of ground-water contamination due to dimethazone. The degree of contamination, if any, from the proposed exemption would require a detailed locational case-by-case analysis of the unique hydrogeological conditions of each proposed usage area. These analyses would require a significant amount of additional data and cannot be made under the schedule required for this application.

TABLE 2.
VULNERABILITY ASSESSMENT

PARISH	PREDOMINATE GEOLOGIC FORMATION	GENERALIZED SOIL DESCRIPTION	VULNERABILITY ASSESSMENT
AVOYELLES	ALUVIUM NATURAL LEVEES PRARIE TERRACES DEWEYVILLE TERRACES	PREDOMINATELY CLAYS SILTS, CLAYS, SANDS CLAYS, SILTS, SANDS, GRAVELS CLAYS, LOCAL SANDS/GRAVELS	MARGINAL MODERATLEY VULNERABLE VULNERABLE * RELATIVELY INVULNERABLE
BIENVILLE	SPARTA HIGH TERRACES KANE RIVER WILCOX GROUP	SANDS W/ CLAY/SHALE BEDS CLAYS, SILTS, SANDS W/ BASAL GRAVEL CLAYS LIGNITIC SANDS W/ SILTY LIGNITIC CLAYS	VULNERABLE * MARGINAL INVULNERABLE MARGINAL
EVANGELINE	PRARIE TERRACES SPARTA INTERM. TERRACES	CLAYS, SILTS, SANDS, GRAVELS SANDS W/ CLAY/SHALE BEDS CLAYS, SILTS, SANDS, GRAVELS	VULNERABLE * VULNERABLE * MARGINAL
FRANKLIN	BRADIED STREAM TERR. ALLUVIUM PRARIE TERRACES	SANDS, SILTS, GRAVELS PREDOMINATELY CLAYS CLAYS, SILTS, SANDS, GRAVELS	VERY VULNERABLE ** MARGINAL VULNERABLE
GRANT	HIGH TERRACES JACKSON GROUP CATAHOULA FORMATION COCKFIELD FORMATION	CLAYS, SILTS, SANDS W/ BASAL GRAVEL MOSTLY CLAYS SANDSTONES, SILTSTONES LIGNITIC CLAY SILTS AND SANDS	MARGINAL INVULNERABLE VERY VULNERABLE ** RELATIVELY INVULNERABLE
MOREHOUSE	BRAIDED STREAM TERR. DEWEYVILLE TERRACES NATURAL LEVEES ALLUVIUM	SANDS, SILTS, GRAVELS CLAYS, LOCAL SANDS/GRAVELS SILTS, CLAYS, SANDS PREDOMINATELY CLAYS	VERY VULNERABLE ** RELATIVELY INVULNERABLE MODERATELY VULNERABLE MARGINAL
RAPIDES	HIGH TERRACES NATURAL LEVEES PRARIE TERRACES SPARTA	CLAYS, SILTS, SANDS W/ BASAL GRAVEL SILTS, CLAYS, SANDS CLAYS, SILTS, SANDS, GRAVELS SANDS W/ CLAY/SHALE BEDS	MARGINAL MODERATELY VULNERABLE VULNERABLE * VULNERABLE *
ST. LANDRY	ALUVIUM NATURAL LEVEES PRARIE TERRACES	PREDOMINATELY CLAYS SILTS, CLAYS, SANDS CLAYS, SILTS, SANDS, GRAVELS	MARGINAL MODERATELY VULNERABLE VULNERABLE *
ST. MARTIN	ALUVIUM NATURAL LEVEES	PREDOMINATELY CLAYS SILTS, CLAYS, SANDS	MARGINAL MODERATELY VULNERABLE
WEST CARROLL	BRAIDED STREAM TERR.	SANDS, SILTS, GRAVELS	VERY VULNERABLE **
W. FELICIANA	HIGH TERRACES ALLUVIUM	CLAYS, SILTS, SANDS W/ BASAL GRAVEL PREDOMINATELY CLAYS	VULNERABLE * MARGINAL

REFERENCES

1. Cohen, S.Z., S.M. Creeger, R.F. Carsel, and C.G. Enfiel, "Potential Pesticide Contamination of Groundwater from Agricultural Uses, in Treatment and Disposal of Pesticide Wastes", ACS Symposium Series #259, R.F. Krueger and J.N. Seiber, ed., American Chemical Society, Washington, D.C., 1984.
2. U.S. Environmental Protection Agency, "Exposure Assessment Branch One Liner, EAB File No: 125401", unpublished chemical property summary on Dimethazone prepared by the Hazard Evaluation Division, Exposure Assessment Branch, Aug. 13, 1985.
3. Louisiana State University and Agricultural and Mechanical College, "General Soil Areas and Associated Soil Series Groups of Louisiana", prepared by Department of Agronomy, Agricultural Experiment Station, May, 1962.
4. Louisiana Geological Survey, "Geologic Map of Louisiana", 1984.
5. Personal communication with Brad Hanson, Geological Supervisor and Section Chief of Ground Water, Louisiana Geological Survey, April 1988.

REGISTRATION DIVISION DATA REVIEW RECORD

Confidential Business Information - Does Not Contain National Security Information (E.O. 12065)

46077 Hec

1. CHEMICAL NAME

Clomazone

4/5/88

2. IDENTIFYING NUMBER

88-LA-02

3. ACTION CODE

510

4. ACCESSION NUMBER

—

TO BE COMPLETED BY PM

5. RECORD NUMBER

218,999

6. REFERENCE NUMBER

1

7. DATE RECEIVED (EPA)

3/31/88

8. STATUTORY DUE DATE

5/20/88

9. PRODUCT MANAGER (PM)

ROB FERREST

10. PM TEAM NUMBER

41 17889

TO BE COMPLETED BY PCB

11. DATE SENT TO HED/TSS

4-1-88

12. PRIORITY NUMBER

6

13. PROJECTED RETURN DATE

4-18-88

14. CHECK IF APPLICABLE

☐ Public Health/Quarantine

☐ Minor Use

☐ Substitute Chemical

☐ Part of IPM

☒ Seasonal Concern

☐ Review Requires Less Than 4 Hours

ATT

15. INSTRUCTIONS TO REVIEWER

- A. HED ☐ Total Assessment - 3(c)(5)
☐ Incremental Risk Assessment - 3(c)(7) and/or E.L. Johnson memo of May 12, 1977.

- C. ☐ BFSD
D. ☐ TSS/RD
E. ☒ Other

B. SPRD (Send Copy of Form to SPRD PM)

- ☐ Chemical Undergoing Active RPAR Review
☐ Chemical Undergoing Active Registration Standards Review

F. INSTRUCTIONS

Review chem. Envir.
fate —
any
groundwater —
concerns?

16. RELATED ACTIONS

17. 3(c)(1)(D)

- ☐ Use Any or All Available Information ☐ Use Only Attached Data
☐ Use Only the Attached Data for Formulation and Any or All
☐ Available Information on the Technical or Manufacturing Chemical.

18. REVIEWS SENT TO

- ☒ TS ☒ EEB ☐ EF ☐ PL
☒ RCB ☒ EFB ☐ CH ☒ BFSD

19. To	TYPE OF REVIEW	NUMBER OF ACTIONS							
		Registration	Petition	EUP	SLN	Sec. 18	Inert	MNR. USE	Other
HED	TOXICOLOGY								
	ECOLOGICAL EFFECTS								
	RESIDUE CHEMISTRY								
	ENVIRONMENTAL DATA					1			
RD/TSS	CHEMISTRY								
	EFFICACY								
	PRECAUTIONARY LABELING								
BFSD	ECONOMIC ANALYSIS								

20. ☐ Label Submitted with Application Attached

21. ☐ Confidential Statement of Formula

22. ☐ Representative Labels Showing Accepted Uses Attached

23. Date Returned to RD (to be completed by HED)

24. Include an Original and 4 (four) Copies of This Completed Form for Each Branch Checked for Review.



BOB ODOM
Commissioner of Agriculture & Forestry
March 25, 1988

Mr. Douglas Campt
Director of Pesticide Programs (TS-767-C)
U. S. Environmental Protection Agency
401 M Street Southwest
Washington, D.C. 20460

5
received
3/31/88
ERMUS

Dear Mr. Campt:

It is anticipated that 15,000 acres of sweet potatoes planted in Louisiana in 1988 will potentially need to be treated for preemergence control of annual broadleaf weeds and grasses.

As provided in Louisiana Revised Statute 3:3222(C), which designates the Commissioner of Agriculture as the state official to apply for an exemption under Section 18 of the amended Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), I am anticipating that an emergency situation will exist for our sweet potatoes and hereby request a Specific Exemption for the use of Clomazone (Command) on sweet potatoes for the 1988 crop season.

The necessary information to support this request is attached. If you have any further questions, please contact H. F. "Butch" Calhoun, III, (504) 925-3763, Director, Pesticides & Environmental Programs, Louisiana Department of Agriculture and Forestry.

Sincerely,

Bob Odom
Bob Odom
Commissioner

BO/mfc/psk
Attachment

cc: Don Stubbs ✓
Environmental Protection Agency, Region VI

APPLICATION FOR SPECIFIC EXEMPTION
IN ACCORDANCE WITH SECTION 18
OF THE AMENDED FIFRA

\$166.20(a)(1)(i)(ii) Contact Personnel and Qualified Experts

Mr. H. F. "Butch" Calhoun, III, Director
Pesticides and Environmental Programs
Louisiana Department of Agriculture & Forestry
P. O. Box 44153, Capitol Station
Baton Rouge, LA 70804-4153
(504) 925-3763

Dr. J. Michael Cannon
Louisiana Cooperative Extension Service
Julian C. Miller Hall, Louisiana State University
University Station
Baton Rouge, LA 70803
(504) 388-2222

Dr. Wayne C. Porter
~~Louisiana Agricultural Experiment Station~~
P. O. Box 120
Chase, LA 71334
(318) 435-4584

\$166.20(a)(2)(i)(A) Description of Pesticide

We are requesting that EPA authorize the use of Clomazone (Command Herbicide, EPA registration No. 279-3053) for the purpose of preemergence control of annual broadleaf weeds and grasses in sweet potatoes from April 15, 1988 to July 15, 1988.

\$166.20(a)(2)(i)(B) A copy of the label is attached.

\$166.20(a)(3)(i) Description of proposed use:

The sites to be treated are in the parishes of Avoyelles, Bienville, Evangeline, Franklin, Grant, Morehouse, Rapides, St. Landry, St. Martin, West Carroll and West Feliciana.

\$166.20(a)(3)(ii) All applications will be made by ground equipment.

\$ 166.20(a)(iii)(iv)(v)(vi) We are requesting an application rate for Clomazone (Command) of 1.0 to 1.5 lb. a.i. total per acre in a single application. The application to be made immediately after transplanting. Approximately 15,000 acres will need to be treated. If each acre receives 1.5 lb. a.i. per acre, then a total of 23,500 lbs. of active ingredients will be required. This translates to 5,625 gallons of Command.

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\$166.20(a)(4)(i)(ii) Alternative methods of control

Of the currently labeled herbicides, Chloramben (Amiben), Dephenamid (Enide), DCPA (Dacthal) and EPTC (Eptam), Chloramben is used by the majority of sweet potato growers. All of these must be applied shortly after transplanting prior to weed emergence. None of these herbicides effectively control broadleaf weeds, especially cocklebur. Chloramben will be rendered ineffective under certain weather conditions. Lack of rainfall within the first week of application will prevent the herbicide from being activated. The most common occurrence in Louisiana is excessive rainfall which leaches Chloramben from the treated area. The other labeled herbicides have the same problem with the environment. See attached data for more information about broadleaf weed control. There are no herbicides labeled for cocklebur control in sweet potatoes.

\$166.20(a)(5) Effectiveness of proposed use. See attached data.

\$166.20(a)(6) Discussion of residues for food use.

~~Detailed residue analysis based on samples collected in three states~~ indicate that it is unlikely that the proposed tolerance will be exceeded when Clomazone is used as directed. See attached information concerning residue and residue tolerances.

\$166.20(a)(7) Discussion of risk information

Clomazone is registered for use in Louisiana in soybeans. We do not anticipate any adverse effects on either man, endangered or threatened species, beneficial crops, or the environment from the proposed use, if EPA grants this specific exemption. See attached label information.

\$166.20(a)(8) Agency coordination

This request is being coordinated between the Louisiana Department of Agriculture & Forestry, the Louisiana Cooperative Extension Service and the Louisiana Agricultural Experiment Station, Sweet Potato Research Station. The contact personnel listed under \$166.20(a)(1) are responsible for submission of this application.

\$166.20(a)(9) Notification of registration

Prior to making this application, FMC Corp., was notified by the Louisiana Department of Agriculture & Forestry that this specific exemption is being requested.

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\$166.20(a)(10) Proposed regulation program

The Louisiana Pesticide Law, Chapter 20 of Title 3 of the Louisiana Revised Statutes of 1950, comprised of R.S. 3:3201 through R.S. 3:3280, designates the Department of Agriculture as the state agency to register, monitor and regulate the use of pesticides. The Louisiana Pesticide Law is more stringent than the Federal Insecticide, Fungicide and Rodenticide Act. Therefore, The Louisiana Department of Agriculture & Forestry is the state agency responsible for insuring that all pesticide laws are complied with. A copy of the Louisiana Pesticide Law and the Rules and Regulations adopted pursuant to that law are on file with the Regional EPA Office in Dallas, Texas.

\$166.20(a)(11) Repeated uses

Clomazone has never been used in sweet potatoes in Louisiana prior to this request.

\$166.20(b)(1) Clomazone will be used to control the following weed pests:
cocklebur (Xanthium pensylvanicum), teaweed (Sida spinosa), velvetleaf (Abutilon theophrasti), broadleaf signalgrass (Brachiaria platyphylla), large crabgrass (Digitaria sanguinalis), and goosegrass (Eleusine indica).

COMMAND® 4EC
Herbicide
For Agricultural and Commercial Use Only
EPA Reg No. 279-3053

FOR DISTRIBUTION AND USE ONLY IN LOUISIANA

FOR USE ONLY IN SWEET POTATOES PURSUANT TO THE APPROVED TERMS OF EMERGENCY EXEMPTION UNDER SECTION 18 OF FIFRA, AS AMENDED. THIS EMERGENCY USE EXPIRES _____ AND ANY USE AFTER THIS DATE WILL BE ILLEGAL.

PEST: Broadleaf Signalgrass, Large Crabgrass, Barnyardgrass, Cocklebur, Common Purslane, Lambsquarter and Prickly Sida

DIRECTIONS FOR USE:

Apply 2-3 pints of Command 4EC per acre. Application can be made pre-plant incorporated or as a surface application post transplanting. Apply before weeds emerge. Apply with ground application equipment. Use a finished spray volume of 10 to 40 gallons of spray per acre.

SPECIAL PRECAUTIONS:

Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of some plants. Prior to making applications, read and strictly follow all precautions and application instructions on this label and on the Federal label.

APPLICATION PRECAUTIONS:

Do not apply Command 4EC Herbicide within 1,500 feet of the areas listed below:

- Towns and Subdivisions
- Commercial Vegetable Production (except sweet corn)
- Commercial Fruit Production
- Commercial Nurseries
- Commercial Greenhouses

Caution must be taken to minimize spray drift as off-site movement can cause foliar whitening or yellowing of plants. Consult the Command Herbicide label for information on the reduction of drift. Prior to making applications, it is recommended that adjacent properties be checked and if desirable plant species are present that spraying within 1,500 feet be avoided. (Refer to the Federal Command label for a listing of susceptible plant species.)

ALL APPLICABLE DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THE EPA REGISTERED LABEL ARE TO BE FOLLOWED.

DO NOT USE THIS PRODUCT THROUGH ANY TYPE OF IRRIGATION SYSTEM.

THIS LABELING MUST BE IN THE POSSESSION OF THE USER AT THE TIME OF PESTICIDE APPLICATION.

FMC Corporation
1563 E. County Line Road, Suite 402
Jackson, MS 39211
(601) 956-8081

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