

US EPA ARCHIVE DOCUMENT

File

262680
RECORD NO.

125401
SHAUGHNESSEY NO

REVIEW NO.

EEB REVIEW

DATE: IN 04/23/90 OUT MAY 14 1990

FILE OR REG. NO. 90-MD-07

PETITION OR EXP. NO. _____

DATE OF SUBMISSION 04/04/90

DATE RECEIVED BY EFED _____ 04/13/90

RD REQUESTED COMPLETION DATE _____ 04/27/90

EEB ESTIMATED COMPLETION DATE _____ 04/30/90

RD ACTION CODE/TYPE OF REVIEW _____ 510

TYPE PRODUCT(S) _____ Herbicide

DATA ACCESSION NO(S) _____

PRODUCT MANAGER, NO. _____ Cool (41)

PRODUCT NAME(S) _____ Command 4 EC

COMPANY NAME _____ MD Dept. Agriculture

SUBMISSION PURPOSE _____ Sec.18 - MD control annual weeds in cucumbers.

SHAUGHNESSEY NO.	CHEMICAL	% A.I.
<u>125401</u>	<u>Clomazone</u>	<u>47.1</u>

** 989

ECOLOGICAL EFFECTS BRANCH REVIEW
SECTION 18

Command

100 Section 18 Application

100.1 Nature and Scope of Emergency

The State of Maryland requests a specific exemption to use Command 4 EC for annual broadleaf weed control on cucumbers. The crisis occurred because of the cancellation of dinoseb.

100.2 Formulation Information

ACTIVE INGREDIENTS:-----47.1%
2-(2-Chlorophenyl)methyl-4,4-dimethyl-3-isoxazolidinone
INERT INGREDIENTS:-----52.9%

100.3 Application Methods, Directions, Rates

Use rate is 0.15 to 0.2 lb ai/acre preemergence. May be applied in a band over the row adjusting the rate and carrier to the band width desired. One application per year (not to exceed 0.25 lb ai/A when two crops of cucumbers are grown), April 20 through August 20, 1990 to approximately 3,000 acres in Anne Arundel, Baltimore, Calvert, Caroline, Kent, Queen Anne's, St. Mary's, Somerset, Talbot, Wicomico, and Worcester counties.

100.4 Target Organism

Annual broadleaf weeds such as common lambsquarters, jimsonweed, purslane, common ragweed, Pennsylvania smartweed, velvetleaf, crabgrass (large, smooth), panicum (Texas, fall), foxtail (giant, green, yellow, robust), field sandbur, barnyardgrass, and spurred anoda.

100.5 Precautionary Labeling

"Do not apply Command 4 EC herbicide preemergence to fields that are within 1,500 feet of the areas listed below:

Residences
Towns and subdivisions
Commercial vegetable production (except sweet corn)
Commercial fruit production
Commercial nurseries
Commercial greenhouses
Small grain fields

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"Caution must be taken to minimize spray drift as off-site movement can cause temporary 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 susceptible and desirable plant species are present, that preemergence spraying within 1,500 feet be avoided."

101 Hazard Assessment

101.1 Discussion

The state of Maryland is requesting an emergency exemption for use of Command 4 EC for annual broadleaf weed control in cucumbers. One application will be allowed. Proposed rate is 0.15 to 0.2 lb ai/A applied preemergence, April 20 through August 20, 1990.

This request is for use on approximately 3,000 acres. Information on the counties where Command 4 EC will be applied was obtained from Dr. C. Edward Beste, Lower Eastern Shore Research and Education Center, Salisbury Facility, University of Maryland, (301) 742-8788, on April 24, 1990.

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Data from previous reviews indicate that clomazone is practically nontoxic to birds on both an acute oral basis and a dietary basis (bobwhite quail and mallard LD50's >2510 mg/kg, LC50's >5620 ppm). The available data on rats suggest that the chemical also has a low mammalian toxicity. Maximum residues, based on the nomograph of Kenaga and Hoerger (1972), were calculated to be as follows:

<u>Substrate</u>	<u>Residue (ppm)</u>
Short range grass	48.0
Long grass	22.0
Leaves and leafy crops	25.0
Forage	11.6
Pod containing seeds	2.4
Fruit	1.4

These levels are below calculated or laboratory determined toxicity values for mammals and birds.

No data are available on the effects of clomazone on pollinators, but in view of the low exposure potential, Command would not be expected to impact honey bees.

Aquatic Organisms

Clomazone is slightly toxic to freshwater fish, with LC50's of 19 mg/l for rainbow trout and 34 mg/l for bluegill sunfish. A daphnid study indicated that clomazone is moderately toxic to aquatic invertebrates (LC50 = 5.2 mg/l). The MATC for Daphnia magna was determined to be between 2.2 and 4.38 mg/l. Estimated environmental concentration (EEC) should be 6.1 ppb 1/ in a pond six feet deep following 5% runoff from 10 acres receiving an application of 0.2 lb ai/A. This value is less than the lowest aquatic LC50 and dose not exceed the 1/10 LC50 trigger for restricted use classification using the most sensitive test species. On the basis of these figures, the proposed use of clomazone will not result in hazard to aquatic organisms.

$$1/ 0.2 \text{ lb} \times 10 \text{ acres} \times 5\% \times 61 \text{ ppb} = 6.1 \text{ ppb}$$

Nontarget Plants

Nontarget plant data are unavailable for clomazone.

The potential exists for herbicides to move from the site of application through drift, volatilization, and runoff. Command will be applied by ground equipment only and drift during application is considered to be negligible. The herbicide has been characterized as volatile (vapor pressure 1.44×10^{-4} mm Hg @ 25C) and soluble (water solubility 1100 ppm), without incorporation it is probable that off-target movement will occur resulting in nontarget plant damage. The Agency record on Command contains numerous reported incidents of adverse effects on nontarget plants when the herbicide is not incorporated. Requiring incorporation would reduce this hazard.

101.3 Endangered Species Considerations

On the basis of information in its endangered/threatened species files, EEB has determined that 2 mammals, 3 birds, 2 insects, 1 mollusk, 3 plants, and 2 reptiles have been identified in the counties where Command 4 EC is to be utilized in Maryland (Delmarva Peninsula fox squirrel, Indiana bat, bald eagle, Arctic peregrine falcon, piping plover, Northeastern beach tiger beetle, Puritan tiger beetle, Dwarf wedge mussel, Canby's dropwort, swamp pink,

sandplain gerardia, Kemp's (Atlantic) Ridley sea turtle, and loggerhead sea turtle).

Hazard to mammals, birds, insects, mollusks, and reptiles from exposure is considered to be minimal based on the low order of toxicity and relatively low application rate.

Since the herbicide will not be incorporated, there is the potential for endangered/threatened plant species to be adversely affected.

101.4 Adequacy of Toxicity Data

The existing data base is adequate to assess the hazard to nontarget organisms, other than plants, for this Section 18.

Data are outstanding for seed germination/seedling emergence, vegetative vigor, and aquatic plant growth.

101.5 Adequacy of Labeling

No label was submitted with this request, although EPA Reg. No. 279-3053 was cited.

103 Conclusions

EEB has reviewed the proposed emergency exemption for the use of Command 4 EC in Maryland for weed control in cucumbers.

Mammals, birds, aquatic organisms, and honey bees are not expected to be adversely affected by this exemption. However, the potential exists for preemergence use to adversely affect nontarget plants. Restricting use to preplant incorporation should reduce the hazard to nontarget plants.

Endangered/threatened species, other than plants, are not expected to be impacted. The potential exists for endangered/threatened plants to be adversely affected if the herbicide is used in the vicinity of these species.

Charles R. Lewis 5/3/90

Charles R. Lewis, Agronomist
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Sandy Brassard for 5/3/90

Ann M. Stavola, Acting Section Head
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

James W. Akerman 5/15/90

James W. Akerman, Chief
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)