

US EPA ARCHIVE DOCUMENT

ECOLOGICAL EFFECTS BRANCH REVIEW
SECTION 18

Command

100 Section 18 Application

100.1 Nature and Scope of Emergency

The State of Pennsylvania requests a specific exemption to use Command on peppers. The crisis occurred because of the cancellations of diphenamid and chloramben.

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 would be 0.5 to 1.0 lb ai/acre preplant incorporated immediately after application to reduce vapor drift. One application per year. Ground row crop sprayer, April through August, 1990 to 3,000 acres, counties not specified.

100.4 Target Organism

Barnyard grass, foxtail (green, giant, and yellow), fall panicum, seedling Johnsongrass, common lambsquarter, common purslane, common ragweed, jimsonweed, velvetleaf, Venice mallow, common cocklebur, smartweed, and Galinsoga sp.

100.5 Precautionary Labeling

From EPA Reg. No. 279-3053

"Do not apply directly to water or wetlands. Do not apply when weather conditions favor drift from area treated. Do not apply where runoff is likely to occur. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label."

"Off-site movement of spray drift or vapors of COMMAND 4EC herbicide 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."

From information submitted by Pennsylvania

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"Strictly follow all label restrictions and warnings regarding drift control, both spray and vapor. Incorporate immediately to reduce the potential for off-site movement. Do not apply within 1,000 feet of sensitive crops, including fruits, vegetables, field crops, ornamentals, or neighbors. Cover crops may be planted after pepper harvest, but temporary injury and some stand reduction may occur. Do not graze or use for feed cover crops planted less than 9 months after clomazone application. Read and follow crop precautions on the Command 4EC label".

101 Hazard Assessment

101.1 Discussion

The state of Pennsylvania is requesting an emergency exemption for use of Command for weed control in peppers. One application will be allowed. Proposed rate is 0.5 to 1.0 lb ai/A preplant incorporated, April through August.

This request is for use on approximately 3,000 acres, counties unspecified.

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	240
Long grass	110
Leaves and leafy crops	125
Forage	58
Pod containing seeds	12
Fruit	7

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 30.5 ppb 1/ in a pond six feet deep following 5% runoff from 10 acres receiving an application of 1.0 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.

$$1/ 1.0 \text{ lb} \times 10 \text{ acres} \times 5\% \times 61 \text{ ppb} = 30.5 \text{ ppb}$$

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 under this condition. The herbicide is considered to be volatile (vapor pressure 1.44×10^{-4} mm Hg @ 25C) and soluble (water solubility 1100 ppm), however incorporation is required and is expected to reduce this hazard.

101.3 Endangered Species Considerations

On the basis of information in its endangered/threatened species files, EEB has determined that 3 mammals, 1 bird, and 1 plant have been identified in Pennsylvania (Indiana bat, Delmarva fox squirrel, Eastern cougar, bald eagle, and small whorled pogonia).

Hazard to mammals and birds from exposure is considered to be minimal based on the low order of toxicity.

The endangered plant, Isotria medeoloides is associated with a variety of forest types but is most often found in open areas of deciduous forests. Consequently, the probability of exposure from this use pattern is remote.

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 in Pennsylvania for weed control in peppers.

Mammals, birds, aquatic organisms, and honey bees are not expected to be adversely affected by this exemption. The hazard to nontarget plants will be reduced by limiting use to preplant incorporation.

Endangered/threatened species are not expected to be impacted.

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