SHAUGHNESSEY NO. _____ REVIEW NO. _____

EE BRANCH REVIEW

DATE: IN 2/5/85 OUT FEB 12 1985

FILE OR REG. NO. 85-DE-01

PETITION OR EXP. PERMIT NO. _____

DATE OF SUBMISSION 1/21/85

DATE RECEIVED BY HED 2/1/85

RD REQUESTED COMPLETION DATE 2/18/85

EEB ESTIMATED COMPLETION DATE 2/18/85

RD ACTION CODE/TYPE OF REVIEW 510/Section 18

TYPE PRODUCT(S): I, D, H, F, N, R, S Insecticide (Pyrethroid)

DATA ACCESSION NO(S). _____

PRODUCT MANAGER NO. D. Stubbs

PRODUCT NAME(S) Pydrin (Fenvalerate)

COMPANY NAME State of Delaware

SUBMISSION PURPOSE Proposed Section 18 for use on carrots

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.

100.0 Pesticide: Pydrin 2.4 EC

101.0 Submission Purpose: Delaware Department of Agriculture requests a special exemption under Section 18 to use Pydrin to control carrot weevils.

102.0 Application Rate: Pydrin is to be applied at a rate of 0.1 - 0.2 lb. ai/A by ground or aircraft for the period May 15 to Septemper 30, 1985. Spraying should commence when seedling carrots show feeding signs.

Suggested restrictions for the proposed program (for crisis notification a description of steps being taken to reduce possible adverse effects on man or the environment).

(a) A maximum of 8 applications per acre per season.

(b) A 7 day pre-harvest interval shall be observed.

(c) Ground application to be made in 20-50/gals/A. Aircraft application = 5 gal/A.

(d) A label restriction shall prohibit the use of treated carrot tops for food or feed.

(e) Residues of Fenvalerate (Pydrin®) - Not to exceed .05 ppm.

(f) Total amount of active ingredient is not to exceed 2 lbs per acre.

(g) Do not plant root crops other than those on the label within 12 months after last application.

(h) All other label precautions shall be followed.

On November 7, 1984, Shell Chemical Company submitted the necessary data package and petition for full Federal registration of Pydrin® to control aster leafhopper and cutworms on carrots. The use rates, application procedures and restrictions requested herein agree with those in the petition submitted. The use of Pydrin® as proposed in this document is considered safe and effective to man, animals and the environment. The safety of Pydrin® is substantially greater than that of Guthion and at the high application rate (.2 lb ai/A) provides superior control of carrot weevil.

103.0 Physical and Chemical Properties

Refer to Chemical Profile

104.0 Toxicological Properties

Refer to Chemical Profile

105.0 Hazard Assessment

Pydrin 2.4 EC is currently registered on cotton, field corn, peanuts, soybeans, apples, peaches, pecans filburts, cabbage, cauliflower, cucumbers, melons, pumpkins, beans, potatoes and sweet corn. The Delaware Department of Agriculture is currently requesting a Section 18 use for carrots, a crop that accounts for about 1000 acreas, in Delaware.

Pydrin, a second generation pyrethroid, is relatively persistent and extremely toxic to aquatic organisms. Under anaerobic conditions, pydrin degradation proceeds at a slow rate with a half-life of about 6 months. Although, hydrolysis results after 24 days at pH 7.2, pydrin is strongly sorbed from aqueous solutions onto soil (soil water partition coefficient was found to be greater than 15,000 and desorption is slowly reversible).

Pydrin appears to be practically non-toxic to birds (mallard LD_{50} = 9932 ppm; Bobwhite quail LC_{50} = 10,000 ppm). However, pydrin is highly toxic to fish (Bluegill LC_{50} = .42 - 0.64 ppb), and aquatic invertebrates (Daphnia EC_{50} = 1.6 ppb). Dr. Richard Garnas at the (EPA) Gulf Breeze station, stated that because of pydrin's tendency to bind to organic sediment, there could be a threat to detritus feeding aquatic organisms.

Field studies (Faatz 5/83, 9/80) show that Pydrin residues via runoff can be detected in an aquatic system at levels that equal or exceed aquatic LC_{50} values. The studies, also, note that these residues are detectable one year after initial application. This potential for exposure and high toxicity, suggests that pydrin use may impact aquatic ecoystems adjacent to agricultural land where the pesticide is being used.

106.0 Adequacy of Toxicity Data:

Aquatic field testing is still an outstanding requirment.

107.0 Conclusions:

EEB has completed its evaluation of this propose Section 18 for Pydrin 2.4 EC use on carrots in Delaware and does not object to its use. However, because of Pydrin's potential to runoff and toxicity to aquatic organisms. EEB would recommend the following:

1) Residue monitoring of aquatic areas adjacent to sprayed fields (including sediment residues).

2) Caged fish study to help assess the impact of Pydrin to an ecosystem.

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