SHAUGHNESSEY NO. _____ REVIEW NO. _____

EE BRANCH REVIEW

DATE: IN 11/19/84 OUT JAN 14 1985

FILE OR REG. NO. 201-401, 201-401

PETITION OR EXP. PERMIT NO. 5F3171, SF 3172

DATE OF SUBMISSION 11/6/84

DATE RECEIVED BY HED 11/13/84

RD REQUESTED COMPLETION DATE 1/22/85

EEB ESTIMATED COMPLETION DATE 1/15/85

RD ACTION CODE/TYPE OF REVIEW 330/Amendment

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

DATA ACCESSION NO(S). _____

PRODUCT MANAGER NO. A. Heyward (17)

PRODUCT NAME(S) Pydrin 2.4 EC

COMPANY NAME Shell Oil Company

SUBMISSION PURPOSE Proposed registration of carrots and spinach

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

100.0 Pesticide Use: Shell Oil Company is proposing that Pydrin insecticide 2.4 EC be registered for carrot and spinach crops.

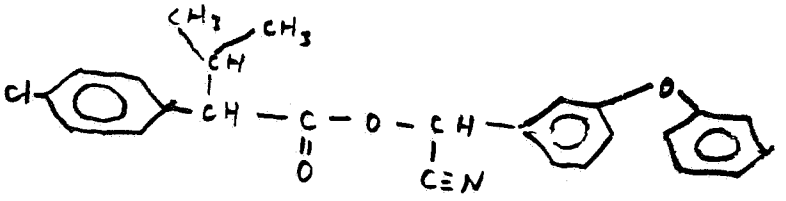
100.1 Application Rates/Methods/Directions

CROP	INSECT	DOSAGE		NO. ACRES TREATED WITH GAL	FURTHER USE INSTRUCTIONS	DAYS TO HARVEST
		LB/AI ACRE	FL OZ/ ACRE			
Spinach	Cabbage Looper, Beet Armyworm	0.1-0.2	5 1/3-10 2/3	24-12	Apply as needed for control, but do not exceed 1.4 lb ai/acre per season.	3
Carrots	Aster Leafhopper Cutworms	0.1-0.2	5 1/3-10 2/3	24-12	Apply as needed for control, but do not exceed 2.0 lb ai/acre per season.	7

101.0 Physical and Chemical Properties

101.1 Chemical Name: Cyano (3-phanoxyphenyl)methyl-4-chloro-alpha-(1-methylethyl) benzeneacetate

101.2 Structural Formulation



101.5 Molecular Weight: 419.9

101.7 Solubility:

Solvent	g/l at 20°C
Hexane	77
Xylene	>450
Acetone	>450
Chloroform	>450
Hexylene Glycol	>450
Water	<20 ppb

101.8 Hydrolysis

pH		
1.1	100 hours	(4.2 days)
7.2	570 hours	(24 days)
9.1	70 hours	(2.9 days)

103.0 Toxicological Properties

Refer to Chemical Profile

104.0 Hazard Assessment

Pydrin 2.4 EC is currently registered on cotton, field corn, peanuts, soybeans, apples, peaches, pecans, filberts, cabbage, cauliflower, cucumbers, melons, pumpkins, beans, potatoes and sweet corn. The registrant is now proposing a Pydrin registration for carrots and spinach, two crops that account for about 100,000 acres.

Pydrin is a second generation pyrethroid that 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), aquatic invertebrates (Daphnia EC_{50} = 1.6 ppb). Dr. Richard Garnas, at the Gulf Breeze station, stated that the invertebrate studies that were conducted, showed no chronic end point (all dose levels were acutely toxic). It was also noted that residues were toxic in the sediment. Since, pydrin has an affinity to bind with the organic rather than the inorganic constituents of the sediment, Dr. Garnas concludes that there could be a threat to detritus and filter 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 is a hazard to adjacent aquatic systems.

105.0 Adequacy of Toxicity Data

EEB needs an adequate aquatic field test. Previously submitted field test (Turner 2/14/79) was unacceptable.

106.0 Endangered Species

This proposed use should not affect Endangered Species.

107.0 Conclusions:

EEB has completed its evaluation of the proposed registration of Pydrin 2.4 EC for use on carrots and spinach. Although, these low acreage crops do not appear to present an incremental increase in risk, the registered uses of pydrin meet RPAR criteria 162.11(3)(c) and present data are not adequate for EEB to complete a hazard assessment. An adequate aquatic field study is still a requirement that has not been satisfied.

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Pydrin ecological effects review

Page _____ is not included in this copy.

Pages 5 through 7 are not included in this copy.

The material not included contains the following type of information:

___ Identity of product inert ingredients

___ Identity of product impurities

___ Description of the product manufacturing process

___ Description of product quality control procedures

___ Identity of the source of product ingredients

___ Sales or other commercial/financial information

X A draft product label

___ The product confidential statement of formula

___ Information about a pending registration action

___ FIFRA registration data

___ The document is a duplicate of page(s) _____

___ The document is not responsive to the request

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.