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259781, 257966, 257967  
Record No.

Review No.  
128101  
Shaughnessey No.

EEB REVIEW

DATE: IN March 16, 1990 OUT May 15, 1990

FILE OR REG. NO. 707-EEU, 707-EEL, 707-EET

PETITION OR EXP. NO. \_\_\_\_\_

DATE OF SUBMISSION January 10, 1990

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TYPE PRODUCTS(S): I, D, H, F, N, R, S Mildewcide

MRID NO(S). --

PRODUCT MANAGER NO. J. Lee, PM#31; Valdis Goncarcus, Rm 711, -3663

PRODUCT NAME(S) Kathon biocide

COMPANY NAME Rohm and Haas, Wendy Bingaman, 215-592-3425

SUBMISSION PURPOSE Which studies are needed to evaluate Kathon and its formulated roducts for use as mildewcides

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% A.I.
<u>128101</u>	<u>Kathon 287 T</u>	<u>97.6</u>
<u>128101</u>	<u>Duracide S Mildewcide</u>	<u>30.0</u>
<u>128101</u>	<u>Duracide M Mildewcide</u>	<u>29.2</u>



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF PESTICIDE PROGRAMS

ENVIRONMENTAL FATE AND EFFECTS DIVISION

May 15, 1990

MEMORANDUM

Subject: Studies needed to support the registration of Kathon 287T Technical, Duracide S Mildewcide and Duracide M Mildewcide (Record Nos 257966, 257967 and 259781).

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

To: John Lee  
Product Manager #31  
Antimicrobial Program Branch  
Registration Division (H7505C)

The Ecological Effects Branch has reviewed the existing data on Kathon (4,5-Dichloro-2-n-Octyl-3(2H)-isothiazolone) to determine what additional data will be necessary to register the products listed. In 1983 EEB reviewed 17 studies commissioned by Rohm and Haas between 1976 and 1979, in order to support their, then-current, registration petition for Kathon as an antifoulant (see attached summary table).

They conducted nine of the studies with C-9211, which were used in the formulation of the antifoulant. This chemical contained 30% 4,5-Dichloro-2-n-Octyl-3(2H)-isothiazolone, 5% 4-Chloro-2-n-Octyl-3(2H)-isothiazolone plus inert ingredients. The 4-Chloro-2-n-Octyl-3(2H)-isothiazolone was an active ingredient and a manufacturing byproduct. The present petition for registration of Kathon as an antifoulant (which is not being considered here) concerns Rohm and Haas chemical C-9211 M. Rohm and Haas has stated that these mixtures are different and that the C-9211 and C-9211 M mixtures are different. Therefore, the studies that used C-9211 (reviewed in 1983) cannot be used to support the 1990 registration request for the three mildewcides.

A telephone conversation (on May 14, 1990) with Wendy W. Bingaman, Rohm and Haas' Regulatory Manager for Biocides, revealed that they would not sell Kathon 278-T to other companies, but would only use it to formulate the two other

CONCURRENCES

SYMBOL	H7507C	H7507C	H7507C			
SURNAME	Goodman	Matheny	Akerman			
DATE	5/15/90	5/15/90	5/15/90			

products. These two, Duracide S and Duracide M, would be sold to paint manufacturers and similar companies, who would add them to their products and market them without making pesticidal claims for the paints. One of the formulations is for mixing with oil based paints and the other is for mixing with water based paints.

Since the final consumer of the paints could not purchase the Duracide products, it would not be possible for them to mix the Kathon product with existing antifoulant products. The products sold to the final consumer would be applied to areas that were prone to mildew, but they would not be used as antifoulant paints.

This use pattern would require the six basic studies. They would not have to be done on both the formulated and the technical products. They could be done on either one and the results could be extrapolated to the other.

EEB judged three of the 1983 studies as fulfilling the registration requirements: 1) Mallard duck acute oral toxicity (§ 71-1), 2) Mallard duck dietary (§ 71-2) and 3) 48-hour Freshwater invertebrate- Daphnia magna (§ 72-2). The Daphnia magna study was originally judged to be "Supplemental," but Goodyear (1990) judged it "Core."

Therefore, there are three studies that the registrant must complete to support the registration: 1) Bobwhite quail dietary (§ 71-2), 2) Bluegill sunfish (Lepomis macrochirus) acute toxicity (§ 71-1), and 3) Rainbow trout (Salmo gairdneri) acute toxicity (§ 72-1).

To insure that a company does not inadvertently add the mildewcide to a paint that might pollute aquatic environments, a warning statement should be added to the labels of the formulated products that states: "Do not use in products that will be used to coat surfaces that will come into contact with aquatic habitats such as lakes, rivers, streams, marshes, bogs, or oceans."

Summary of Wildlife and Aquatic Organism Toxicity Testing with Kathion  
(RH-287; 4,5-Dichloro-2-n-Octyl-3(2H)-isothiazolone)

Type of Test	Species	Type of Product	Result as ai	Citation	ID Number	Status	To be done?
<b>Section 158.145 WILDLIFE AND AQUATIC ORGANISMS</b>							
Avian and Mammalian Testing							
71-1 Avian Oral Acute LD <sub>50</sub>	Mallard Duck	RH-287	>4,600 mg/kg	Fink, 1976	249935	Core	No
	Bobwhite quail	RH-287	Only one species need be tested.				
71-2 Avian Dietary LD <sub>50</sub>	Bobwhite quail	RH-287					Yes
	Mallard duck	RH-287	>10,000 ppm	Fink, 1976	249935	Core	No
Aquatic Organism Testing							
72-1 Fresh-water Fish 96-hour LC <sub>50</sub>	Bluegill sunfish	RH-287	29 ppb	Buccafusco, 1976	249935	Supplemental <sup>2</sup>	Yes
	Bluegill sunfish	C-9211 <sup>1</sup>	17 ppb	Buccafusco, 1977	249935	Supplemental <sup>2</sup>	No
	Rainbow trout	RH-287	9.7 ppb	Buccafusco, 1976	249935	Supplemental <sup>2</sup>	Yes
	Rainbow trout	C-9211 <sup>1</sup>	8 ppb	Buccafusco, 1977	249935	Supplemental <sup>2</sup>	No
72-2 Freshwater Invertebrate	<i>Daphnia magna</i>	RH-287	9.2 ppb	Buccafusco, 1976	249935	Core <sup>3</sup>	No
	<i>Daphnia magna</i>	C-9211 <sup>1</sup>	22 ppb	Buccafusco, 1977	249935	Core <sup>3</sup>	No
72-3 Estuarine and Marine Organisms 96-hour acute	Marine fish-Sheepshead minnows	C-9211 <sup>1</sup>	17 ppb	Heitmuller, 1977	249935	Core	No
	Eastern oysters embryo-larvae	C-9211 <sup>1</sup>	5 ppb	Hollister, 1977	249935	Core	No
	Bay mussels <i>Mytilus edulis</i> embryo-larvae	C-9211 <sup>1</sup>	1.9 ppb	Hollister, 1977	249935	Supplemental <sup>4</sup>	No <sup>5</sup>
	Fiddler crabs <i>Uca pugilator</i>	C-9211 <sup>1</sup>	1 ppm	Heitmuller, 1977	249935	Supplemental <sup>4</sup>	No <sup>5</sup>
	Bay mussels <i>Mytilus edulis</i>	C-9211 <sup>1</sup>	850 ppb	Heitmuller, 1979	249935	Supplemental <sup>4</sup>	No <sup>5</sup>
	Brown shrimp <i>Penaeus aztecus</i>	C-9211 <sup>1</sup>	10 ppb	Heitmuller, 1977	249935	Core	No
<b>Section 158.150 PLANT PROTECTION TESTING</b>							
122-2 Aquatic Plant Growth	<i>Skeletoma costatum</i>	C-9211 <sup>1</sup>	cells- 18 ppb Chlorophyll a- 13 ppb	Hollister, 1977	249935	Supplemental	No <sup>4</sup>

<sup>1</sup> C-9211 is 30% RH-287, 5% RH-085 plus inerts. It is not C-9211 M. <sup>2</sup> Low dissolved oxygen levels. <sup>3</sup> Test was done at 22° not 17°, but there were no control mortalities. <sup>4</sup> Test animals were not from one of the recommended species. <sup>5</sup> Test was not required by EPA, but it may be required for this use in the future (depending on the results of other, outstanding tests) or if new uses are proposed by the registrant.