

FILE COPY

Date Out EFB OCT 29 1980

To: Product Manager-Don Stubbs
TS-767

From: Dr. Willa Garner *Samuel M. Breger, Acting Chief*
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 80-A2-3

Chemical: Endothall

Type Product: Aquatic herbicide

Company Name: Hydrothol 191

Submission Purpose: Section 18 - State of Arizona

ZBB Code: Other

ACTION CODE: 510

Date in: October 16, 1980

EFB # 651

Date Completed: OCT 29 1980

Time (days) 2

Deferrals To:

☐ Ecological Effects Branch

☐ Residue Chemistry Branch

☐ Toxicology Branch

1.0 Introduction

- 1.1 Purpose: The Arizona Commission of Agriculture and Horticulture is requesting Section - 18 emergency exemption allowing the 1981 use of Endothall (Hydrothol 191) for weed control in moving irrigation transmission and delivery canals (submission of 7/3/78). Use will be limited to Maricopa County. According to the commission's letter of 7/3/78 to EPA, a substantial portion of treated water will be used for domestic purposes.

Target pests are three algal species: Cladophora, Spirogyra, and Chara; and four vascular weeds: horned pondweed, eel grass, pond weeds, and water star grass. Principal Arizona crops that will be irrigated with treated water include: cotton, small grains, alfalfa, vegetables (lettuce, broccoli, carrots, cabbage, cauliflower, and onion), cantaloupes, watermelon, honeydews, sugarbeets, safflower, potatoes, and citrus.

1.2 Background:

Endothall (Hydrothol 191) was conditionally registered for aquatic weed control in lakes, ponds and ditches (Reg. No. 4581-174, approved on 5/19/77).

Registered use pattern does not allow use to irrigation canals or potable water. Registered dosage is 4 to 6.7 gal/A foot, equivalent to 3 to 5 ppm. According to the registered label, treated water could be used for domestic purposes, including drinking and irrigation, 7 days after application of up to 3 ppm; 14 days after application of up to 4 ppm; and 25 days after application or up to 5 ppm.

Other derivatives of endothall are marketed under the trade name: Accelerate, Aquathol, Desi-i-cate, Endothall turf herbicide, Endothall weed killer, Herbicide 273, Hydout, Ripenthol, and Tri-Endothall. These formulations are currently registered for use on sugar beets, red beets, spinach, turf, as aquatic herbicides, as aquatic algaecides, as alfalfa and clover desiccants; as cotton harvest aids, and as potato vine killers.

Included in the submission was an answer from the Arizona Commission of Agriculture and Horticulture to EPA, dated 9/25/80.

From the questions raised by the ERS of EPA and the Commission's answers, it was apparent that Hydrothol 191 is currently registered in the state of Arizona under Section 24 -C for use in irrigation canals at a maximum dosage of 0.2 ppm. This dosage was found to be efficacious for weed control within 10 miles of application, however, it only provided partial control of vascular aquatic weeds from mile 10 to 24 down stream. The commission did not agree with the EPA suggestion to use a copper compound and 0.2 ppm hydrothol. Their reason was that copper compounds

are ineffective against algae and have to be applied every two weeks from May to September. They fear that using that much copper could have phytotoxic effects on crops being irrigated by treated water. Additionally, the commission rejected EPA's suggestion of multiple application points using Hydrothol 191, on grounds that it will require building multiple secure application sites; besides, it will not solve the problem of controlling algae. It should be pointed out here that the registered label warns that fish will be killed at dosage of 0.3 ppm. That is why, perhaps. state registration to irrigation water was limited to 0.2 ppm.

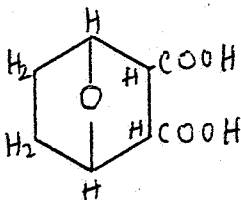
1.3 Chemical

Common name: Endothall

Trade Name: Hydrothol 191

Chemical name: Mono (N, N - dimethylalkylamine) salt of endothall
[7-oxabicyclo (2.2.1) heptane- 2,3- dicarboxylic acid] -2 lbs ai/gal.

Chemical formula:



1.4 Environmental Fate Profile

Environmental Chemistry data gaps for the proposed use pattern, aquatic food crop uses, are: field dissipation study, rotational crop data and residues in irrigated crops.

2.0 Proposed Use

The Arizona Commission of Agriculture and Horticulture did not provide adequate information concerning use pattern which are:

1. Dosage to be applied.
2. Timing of application and intervals thereof.
3. Duration of the emergency.
4. Quantity of Endothall required during the emergency period.

According to the commission, most applications will be made in July, August, and September, and that some applications will be made in December, January and February (what year?). The commission, however, referenced a non-registered label of Hydrothol 191. Proposed dosage of Hydrothol 191 to fast-flowing water (above 0.25 mile per hour)- irrigation drainage canals; is 3 ppm to be applied for 3 to 8 hours. Label recommends using a constant-flow device for the duration of the application. According to the proposed label, the rate of application is based on the cubic feet per second (cfs) of water moving in the canal. For 3 ppm, the following amounts of hydrothol 191 per minute was recommended:

Flow as Cfs	5	10	15	20	50	100	200
Fluid Oz.	3.6	7.2	10.8	14.4	36	72	144

The amount of hydrothol 191 required for treatment may be calculated from the formula: gallons required = ppm X time in minute X Cfs X 0.001872

The proposed label gave the following example: Volume of hydrothol 191 required for an application of 3 ppm for 3 hours is: 3ppm X 180 minutes X 1 Cfs X 0.001872 = 1 gallon.

The proposed label contained the following precautionary statements: This product is toxic to fish and wildlife. Fish and other aquatic organisms in water treated with this product may be killed. Where fish are an important resource, HYDROTHOL 191 should be applied only by professional applicators in partial or sectional treatments. In order to minimize possible fish kill, start application at the shallower edge of the area to be treated and move toward deeper water, always leaving an escape route for fish from treated to untreated water.

During application, avoid contact with or drift to desirable crops or plants as injury may result. Rinse application equipment thoroughly after each use. Dispose of rinsate in body of water treated.

Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment. Open dumping is prohibited.

Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

Triple rinse container and offer for recycling, reconditioning or disposal in approved landfill or bury in a safe place.

Consult Federal, State or local disposal authorities for approved alternative procedures.

3.0 Discussion of Data

No environmental chemistry data were submitted with this application.

4.0 Conclusions

We do not concur with the state of Arizona request for Section 18 emergency exemption allowing use of Endothal to irrigation water because of environmental chemistry data gaps listed under 1.4 above and inadequate information provided by the commission concerning use pattern as shown under 2.0 above.

Note to PM: This review dealt only with the section on "Fast-Flowing Water" of the proposed Hydrothol 191 label.
See letter from Arizona Commission of Agriculture and Horticulture, dated July 3, 1978, attached.

Sami Malak

Sami Malak, Ph.D.
Review Section No. 1
Environmental Fate Branch/HED



Arizona Commission of Agriculture and Horticulture

1688 WEST ADAMS • PHOENIX, ARIZONA 85007 • (602) 271-4373



July 3, 1978

Mr. Douglas Costle
U. S. Environmental Protection Agency
4th and "M" Streets, S.W.
Washington, D.C. 20460

Dear Mr. Costle:

This is an application by the Arizona Commission of Agriculture and Horticulture to the Environmental Protection Agency for a Section 18 "Emergency Use Exemption" for the use of Hydrothal 191[®] in moving irrigation water until a full registration is granted.

This material is needed in Maricopa County, Arizona, in irrigation transmission and delivery canals in order to keep them clear of aquatic weed growth so the canals can perform their function of efficiently delivering water of acceptable quality. The petroleum-related products all have recently shown greatly increased prices, are frequently in short supply and are being restricted in their use. Herbicides containing copper are effective for algae control, but are uneconomical for rooted weed control, and algae in this area is rarely found alone. A substantial portion of this water is taken for domestic purposes.

A statement will appear on the label stating that this product is for use only by Arizona certified commercial applicators with the aquatic pest control certification.

This specific exemption for the use of Hydrothal 191[®], which is in an advanced stage of registration, will assure irrigation projects in Maricopa County, Arizona, of an efficient, safe, and environmentally acceptable aquatic herbicide, and one which is an important tool in protecting water quality and supply.

The Commission of Agriculture and Horticulture has been appointed by the Governor of Arizona as the Agency responsible for Section 18 programs. Your immediate and concerned attention to this application is requested.

The attached information is an excerpt from a Pennwalt Corp. report concerning fish and wildlife safety when using Hydrothal 191[®] and provides the available data on fish and arthropod safety in irrigation canals with moving water.

Regarding safety to humans, the acute oral LD₅₀ is 500. Pennwalt states that this product has been used for 19 years with no injury to humans.

Sincerely,

RECEIVED

JUL 12 1978

James R. Carter
Director

JAB/cms

Enclosures - 2

Deputy Assistant Administrator
Office of Pesticide Programs

Received 6
7/18/78
D. H. H.