

Shaughnessy Number: 81901

Date out of EFGWB: 11/5/90

To: Cool/Tompkins
Product Manager 41
Registration Division (H7505C)

From: Henry Nelson, Acting Section Head *H Nelson* 10/30/90
Environmental Fate Review Section #3
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Thru: Hank Jacoby, Chief *Hank Jacoby*
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File #: 90-FL-07

Chemical Name: Chlorothalonil

Type Product: fungicide

Product Name: Bravo

Company Name: Fermenta (formerly Diamond Shamrock)

Purpose: emergency exemption (section 18) for use on fish nets

Date Received: 10/18/90

Action Code: 510

EFGWB#(s): 91-0057

Total Reviewing Time (decimal days): 2

Deferrals to: Ecological Effects Branch, EFED
Science Integration and Policy Staff, EFED
Non-Dietary Exposure Branch, HED
Dietary Exposure Branch, HED
Toxicology Branch

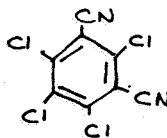


CHLOROTHALONIL 91-0057 1.1

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1. CHEMICAL:

chemical name: 2,4,5,6-tetrachloroisophthalonitrile
common name: chlorothalonil
trade name: daconil
structure:
CAS #: 1897-45-6
Shaughnessy #: 081901



2. TEST MATERIAL: n.a.

3. STUDY/ACTION TYPE: special local need (section 18) in Alaska (antifouling agent on containment nets in an aquaculture system)

4. STUDY IDENTIFICATION: n.a.

5. REVIEWED BY:

Typed Name: E. Brinson Conerly
Title: Chemist, Review Section 3
Organization: EFGWB/EFED/OPP

E.B. Conerly 10/30/90

6. APPROVED BY:

Typed Name: Henry Nelson
Title: Acting Section Head, Review Section 3
Organization: EFGWB/EFED/OPP

7. CONCLUSIONS:

This information was requested by EEB. Although it is not pertinent to EFGWB data requirements, this Branch has been asked to review it. It appears that an "worst case" concentration of Chlorothalonil in the vicinity of a net would be in the order of 8.1 ppm (if the entire amount were released at one time). The concentration from leaching from nets would probably be less, but this cannot be determined from the submitted data.

8. RECOMMENDATIONS:

Since time is of the essence for this action, EEB should assess the potential harmful effect of Chlorothalonil on aquatic organisms (especially the confined fish) on the basis of some "worst case" scenario, possibly EFGWB's estimate of 8.1 ppm. A better estimate of the release rate from netting can be made when the applicant provides the following: volume of the netting; cross-sectional area of its cords; experimentally determined rate of leaching from coated netting.

9. BACKGROUND:

The status of data requirements is as follows:

hydrolysis -- fulfilled (MRID#s 00405-39,) stable at pH 5 and 7; 10% degrades in 30 days at pH 9; 2,4,5,6-tetra-Cl-isophthalimide the only degradate



photolysis in water -- not fulfilled (MRID #s 000872-81, 4018340-18, 000405-40, 1988 Reg. Std.) -- additional data are required -- MRID # 401834-18 could be made acceptable, and indicates stability to photolysis

soil photodegradation -- not fulfilled (MRID # 001437-51, 1988 Reg. Std)

aerobic soil metabolism -- not fulfilled -- the study (Guidelines subpart N) must establish patterns of disappearance of parent; appearance and disappearance of degradates; identity of degradates

anaerobic soil metabolism -- fulfilled by acceptable anaerobic aqueous metabolism study (10/23/85, also HLB 4/22/86, MRID# 001479-75)

anaerobic aquatic metabolism -- fulfilled (10/23/85, also HLB 4/22/86, MRID# 001479-75) -- t_1 5-15 days, producing 4-OH-2,5,6-tri-Cl-isophthalonitrile, 3-CN-2,4,5,6,-tetra-Cl-benzamide, 2-OH-5-CN-3,4,6-tri-Cl-benzamide, and 3-carboxy-2,5,6-trichlorobenzamide

leaching/adsorption/desorption -- fulfilled (8/1/86, MRID#s 001151-05, 001537-10) -- low leachability in lab, but findings in ground water triggered monitoring requirements. [k_d s 3 (sand) to 29 (silt) in batch studies.]

terrestrial field dissipation -- partially fulfilled (MRID # 000872-96, 1988 Reg. Std.)

confined accumulation on rotational crops -- no further data required (1988 Reg. Std, MRID# 000294-09), field studies indicate the need for tolerances

fish bioaccumulation -- not fulfilled (EBC 11/29/89) -- possible accumulation

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

The applicant estimated a concentration of 0.5×10^{-2} ppb for chlorothalonil using a leaching rate from paint chips exposed to water. A copy is attached.¹ Unfortunately, several assumptions in these calculations are not applicable to the situation at hand. However, highly tentative worst case estimates can be made.

¹ They estimate 0.5×10^{-2} ppb of chlorothalonil in Neets Bay (Prince William Sound), calculated from the area enclosed by the nets (length multiplied by width). This is not equivalent to the surface area available for leaching, since the net consists largely of holes. The surface area of the net itself is its volume (which could be determined by fluid displacement of a piece of netting of known dimensions) divided by the cross-sectional area of a filament (cord) from the net. EFGWB has no means of estimating either of these measurements from the information contained in the submission. Further, the leaching from a paint chip is not (as the applicant is surely aware) necessarily representative of the leaching from a coated net.



If the chlorothalonil applied to one net were "dumped" into the enclosed volume all at once, the resulting concentration would be 8.1 ppm.²

If the entire amount of chlorothalonil were "dumped" into Prince William Sound at one time, the resulting average concentration would be 1.6 ppb.³

The concentration resulting from leaching from the nets would almost surely be far less.

11. COMPLETION OF ONE-LINER: no information added

12. CBI APPENDIX: n.a.

² Calculated using the applicant's figures:

- 1) 1170 lb/ 60 nets = 19.5 lb/net -- 8.853×10^3 gm/net
- 2) nets are 40 x 40 x 24 ft, so there is 38400 ft³ of water (1087.49 m³ or 1.09×10^9 cc) enclosed by the net
- 3) resulting concentration is 8.1×10^{-6} gm/cc or 8.1 ppm.

³ Calculated using the applicant's figures of 1170 lb Chlorothalonil -- 5.31×10^5 gm -- in 3.3×10^{11} liters of water in Neets Bay, or 1.60×10^{-6} gm/l.

