



DP Barcode: D177152  
PC Code No.: 083120  
EFGWB Out:

3/16/93

To: John Lee, PM #31  
Registration Division (H7505C)

From: Emil Regelman, Supervisory Chemist  
Environmental Chemistry Review Section #2  
Environmental Fate & Ground Water Branch/EFED (H7507C)

Thru: Henry Jacoby, Chief  
Environmental Fate & Ground Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of...

Reg./File # : 5625-R  
Common Name : TBT  
Product Name : Tempo Clear Anti-Fouling Paint No. 6993  
Company Name : Tempo Products Company  
Purpose : Review Release Rate test.

Type Product: biocide Action Code: 160 EFGWB #(s): 92-0762 Review Time: 1 days

EFGWB Guideline/MRID/Status Summary Table: The review in this package contains...

161-1		162-4		164-4		166-1	
161-2		163-1		164-5		166-2	
161-3		163-2		165-1		166-3	
161-4		163-3		165-2		167-1	
162-1		164-1		165-3		167-2	
162-2		164-2		165-4		201-1	
162-3		164-3		165-5		202-1	
release rate	422753-01	A					

- A= Acceptable (Study provides scientifically valid and fully documented information).
- U= Upgradeable (Study provides scientifically valid information, but is missing certain data necessary for complete validation).
- C= Ancillary (Study appears to provide scientifically valid information, but data cannot be verified).
- I= Invalid (Study does not provide scientifically valid information).

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1. CHEMICAL:

chemical name: Tributyltin  
common name: TBT

2. TEST MATERIAL:

Tempo Clear Anti-Fouling Paint Outboard•Outdrive (No. 6993)  
ID#: 005625-R

3. STUDY/ACTION TYPE:

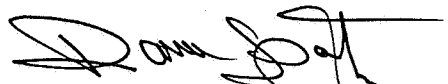
Review release rate data submitted in support of registration.

4. STUDY IDENTIFICATION:

Anthony Charles. "Leach Rate Determinations of Antifoulant  
Paints Containing Tributyltin." Performed by Case Consulting  
Laboratories, Inc. for Tempo Products Company. Received by  
EPA on April 6, 1992. MRID #: 422753-01.

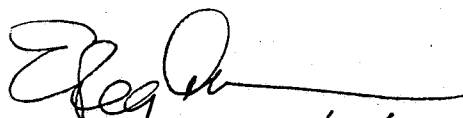
5. REVIEWED BY:

Dana Spatz  
Chemist, CRS #2  
EFGWB/EFED/OPP

  
Date: MAR 15 1993

6. APPROVED BY:

Emil Regelman  
Supervisory Chemist, CRS #2  
EFGWB/EFED/OPP

  
Date: 3/16/93

7. CONCLUSIONS:

The release rate data submitted in support of the registration  
of Tempo Clear Anti-Fouling Paint (No. 6993, ID#: 005625-R)  
are acceptable for certification purposes. The certified  
average release rate of the tested paint is 2.63  $\mu\text{g}/\text{cm}^2/\text{day}$ .  
This paint meets the 4.0  $\mu\text{g}/\text{cm}^2/\text{day}$  release rate restriction  
imposed by OAPCA. The 14-day cumulative release rate is 43.5  
 $\mu\text{g}/\text{cm}^2$ .

8. RECOMMENDATIONS:

Tempo Products Company has fulfilled the release rate study  
requirements for the paint cited above. The paint is certified

by EFGWB to have an average release rate below the 4.0  $\mu\text{g}/\text{cm}^2/\text{day}$  restriction imposed by OAPCA.

9. BACKGROUND:

The release rate data reviewed in this submission were generated using the "Interim Draft of the ASTM Standard Test Method for Organotin Release Rates of Antifouling Coating Systems in Sea Water." The study was initiated on January 21, 1992 and completed on March 6, 1992.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

**Materials and Methods:**

Polycarbonate cylinders were fabricated and prepared for coating. Seams were sealed with a bead of polycarbonate/methylene chloride cement, as were the bottoms. The test paint was an aerosol applied to three rotating cylinders in a hood by spray from the can with frequent shaking to assure uniform mixing. Successive coats were applied to reach a coating thickness of 0.004" minimum. With a rotating fixture, individual cylinders of the EPA Standard Test Paint were coated using a foam applicator to reach a minimum thickness of 0.004". The leach rate test was started 8 days after painting.

The measuring beakers were calibrated with a mark at 1500 ml of sea water. Sea water was made as per ASTM D-1141, Section 6 and stored in a 100 liter tank that was continually pumped through an activated carbon filter at 5 liters/minute. Temperature was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . Tin content, pH, and salinity were measured at 3-7 day intervals.

Stirring time was 60 minutes for each leach rate determination period. All paint cylinders were rotated at  $60 \pm 5$  rpm for the 1 hour immersion time. When the elapsed time was reached, a 25 ml sample of sea water was pipetted from each container and transferred to a HCl cleaned and rinsed, 60 ml glass bottle containing enough dilute HCl to maintain pH <4 and sealed with a polyolefin lined cap. Bottles were placed in a refrigerator until extracted and analyzed (maximum of 12 days). Acceptable storage stability data were previously submitted.

The paint cylinders were then placed in a holding tank of synthetic sea water until the next sampling point. Sampling containers were emptied, washed thoroughly with tap water, rinsed with DI water and dried before reuse.

Each holding tank was checked every 3 to 7 days for pH and salinity via specific gravity. Tin concentrations were determined by AA on a weekly basis. Each sea water tank volume was pumped through its own activated carbon filter cartridge and returned to the bottom of the opposite tank end. Carbon cartridges were changed when tin values reached approximately 20 ppb.

**Quality Control Results:**

An EPA Standard Test Paint was run during the release rate experiment. The average release rate for the STP was 2.36  $\mu\text{g}/\text{cm}^2/\text{day}$ .

Spike recoveries (20, 30, and 50  $\mu\text{g Sn/L}$ ) ranged from 86.2% to 113.2%, with an overall average value of 97.3%.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

Not applicable.

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# Tributyltin Methacrylate

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Pages   5   through   11   are not included.

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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 quality control procedures.
  - Identity of the source of product ingredients.
  - Sales or other commercial/financial information.
  - 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.
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