3-23-93

DP Barcode: D187690
PC Code No.: 083120
EFGWB Out:

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)

3/23/93

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

Attached, please find the EFGWB review of...

Reg./File # : 8120-54

Common Name : TBT

Product Name : AMERCOAT 3224 Black Aerosol Antifoulant

Company Name : Ameron Protective Coatings

Purpose : Review Release Rate test.

Type Product: biocide Action Code:310 EFGWB #(s):93-0387 Review Time: 1 day

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	426452-01	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).

1. CHEMICAL:

chemical name: Tributyltin
common name: TBT

2. TEST MATERIAL:

AMERCOAT 3224 Black Aerosol Antifoulant ID #: 8120-54

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 Ameron Protective Coatings. Received by EPA on January 29, 1993 MRID #: 426452-01.

5. REVIEWED BY:

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

Date: MAR 22 1993

6. APPROVED BY:

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

Date: 3/23/93

7. CONCLUSIONS:

The release rate data submitted in support of the registration of AMERCOAT 3224 Black Aerosol Antifoulant (ID #: 8120-54) are not acceptable for certification purposes. The average release rate of the tested paint is 4.16 $\mu g/cm^2/day$. This paint exceeds the 4.0 $\mu g/cm^2/day$ release rate restriction imposed by the Organotin Antifouling Paint Control Act of 1988 (OAPCA). In addition, there where three instances when the concentration of tin in the holding tanks exceeded the 40 ppb limitation specified in the release rate method. On 10/30 (day 24), 11/20 (day 45), and 11/24 (day 49), the tin concentration was 124 ppb in tank #2, 71 ppb in tank #4, and 49 ppb in tank #2, respectively.

8. RECOMMENDATIONS:

The paint cited above has an average release rate greater than the 4.0 $\mu g/cm^2$/day restriction imposed by OAPCA. As such, it is not eligible for registration.

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 October 6, 1992 and completed on December 15, 1992.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

Reviewer Comments:

The registrant has argued that the release rate did not reach pseudo steady state until day 31 and the average release rate based on days 31 thru 66 is 3.90 $\mu g/cm^2$/day, which is below the OAPCA restriction. However, based on the definition of pseudo steady state as described in the leach rate method, (Interim Draft of the ASTM Standard Test Method for Organotin Release Rates of Antifouling Coating Systems in Sea Water), EFGWB has determined that pseudo steady state had been reached by day 21. In section 10.4 of the test method, it states:

> "Calculate the average release rate ($\mu g/cm^2$/day) by averaging individual release rate measurements taken from day 21 through the last day of sampling (day 45-day 73). If values at day 21 are high and it is suspected that the release had not reached pseudo steady state conditions, then compare the release rate at day 21 to the mean for all release rates from day 21 through termination of testing (45-73 days). If the release rate exceeds the mean by two or more standard deviations, then the release rate may be excluded from the average. If the day 21 release rate is excluded, the day 24 release rate may be evaluated by the same procedure."

The average release rate for days 21 through the end of the study (day 66) was 4.5 ± 1.82 $\mu g/cm^2$/day. By this standard, the only release rate data point that may be considered an outlier is day 28. The average release rate on this day was 8.91 $\mu g/cm^2$/day. Days 21 and 24 are not outliers and are well within the definition of pseudo steady state. If the day 28 outlier is removed from the release rate calculation, the

3

average release rate for days 21 thru 66 is 4.16 $\mu g/cm^2/day$. This exceeds the release rate restriction imposed by OAPCA.

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 7 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°C ±1°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 ± 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 10 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. (**Note:** There where three instances when the concentration of tin in the holding tanks exceeded the 40 ppb limitation specified in the release rate method. On 10/30 (day 24) , 11/20 (day 45), and 11/24 (day 49), the tin concentration was 124 ppb in tank #2, 71 ppb in tank #4, and 49 ppb in tank #2, respectively).

Quality Control Results:

An EPA Standard Test Paint was run during the release rate experiment. The average release rate for the STP was 3.42 $\mu g/cm^2/day$. Spike recoveries (20, 30, and 50 μg Sn/L) ranged from 91.6% to 123.0%, with an overall average value of 103.0%.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

Not applicable.

5

Tributyltin Methacrylate

Page_____ is not included in this copy.

Pages 6 through 13 are not included.

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.

X FIFRA registration data.

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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.
