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ENVIRONMENTAL FATE AND GROUND WATER BRANCH

To: Marshall Swindell, PM #31
Registration Division (H7505C)

From: Mah T. Shamim, Ph.D., Section Chief
Chemistry Review Section 2
Environmental Fate & Ground Water Branch/EFED (H7507C)

Mahamim

MAY 23 1995

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

Henry Jacoby 5/23/95

Attached, please find the EFGWB review of...

Common Name:	Tributyltin Methacrylate	Trade name:	Alumacoat II Antifoulant
Company Name:	Kop-Coat		
ID #:	060061-IN		60061-80
Purpose:	Review release rate studies for two formulations of an antifoulant paint (blue and black).		

Type Product:	Action Code:	Review Time:
antifoulant	161	3 days

STATUS OF STUDIES IN THIS PACKAGE:

**STATUS OF DATA REQUIREMENTS
ADDRESSED IN THIS PACKAGE:**

Guideline #	MRID	Status ¹
release rate	431545-01	A
release rate	431545-02	A

Guideline #	Status ²
release rate	S
release rate	S

¹Study Status Codes: A=Acceptable U=Upgradeable C=Ancillary I=Invalid.
²Data Requirement Status Codes: S=Satisfied P=Partially satisfied N=Not satisfied R=Reserved W=Waived.

1. CHEMICAL:

chemical name: tributyltin methacrylate
common name: TBT

2. TEST MATERIAL:

Alumacoat II Antifoulant 1260 (blue)
Alumacoat II Antifoulant 1860 (black)

3. STUDY/ACTION TYPE:

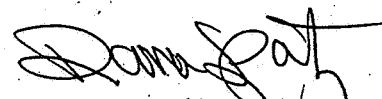
Review release rate data submitted in support of registration.

4. STUDY IDENTIFICATION:

- A. Anthony, Charles. "Leach Rate Determinations of Antifoulant Paints Containing Tributyltin." Alumacoat II Antifoulant 1260 (blue). Performed by Case Consulting Laboratories, Inc. for Kop-Coat, Inc. Study completed on September 17, 1993. Received by EPA on March 10, 1994. MRID #: 43154501.
- B. Anthony, Charles. "Leach Rate Determinations of Antifoulant Paints Containing Tributyltin." Alumacoat II Antifoulant 1860 (black). Performed by Case Consulting Laboratories, Inc. for Kop-Coat, Inc. Study completed on September 17, 1993. Received by EPA on March 10, 1994. MRID #: 43154502.

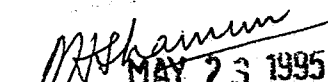
5. REVIEWED BY:

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


Date: MAY 18 1995

6. APPROVED BY:

Mah T. Shamim, Ph.D.
Section Head, CRS #2
EFGWB/EFED/OPP


Date: MAY 23 1995

7. CONCLUSIONS:

The release rate data submitted in support of the registration of Alumacoat II 1260 (blue) and Alumacoat II 1860 (black) are acceptable for certification purposes. The

certified average release rate of the Alumacoat 1260 paint is $3.15 \mu\text{g}/\text{cm}^2/\text{day}$. The certified average release rate of the Alumacoat 1860 paint is $3.82 \mu\text{g}/\text{cm}^2/\text{day}$. These paints meet the $4.0 \mu\text{g}/\text{cm}^2/\text{day}$ release rate restriction imposed by OAPCA. The 14-day cumulative release rate is $21.3 \mu\text{g}/\text{cm}^2$ for the Alumacoat 1260 paint and $28.7 \mu\text{g}/\text{cm}^2$ for the Alumacoat 1860 paint.

8. RECOMMENDATIONS:

Kop-Coat Marine Group has fulfilled the release rate study requirements for the paints cited above. Alumacoat 1260 (blue) and Alumacoat 1860 (black) are 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."

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

A. Alumacoat II 1260 (blue)

Material 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. Individual cylinders were coated (method not specified) 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 $25^\circ\text{C} \pm 1^\circ\text{C}$. 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 ± 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 a $\text{pH} < 4$ and sealed with a polyolefin lined cap. Bottles were placed in a refrigerator until extracted and analyzed (maximum of 4 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 $2.60 \mu\text{g}/\text{cm}^2/\text{day}$. Spike recoveries (30, 40, and $50 \mu\text{g Sn/L}$) ranged from 89.5% to 108.7%, with an overall average value of 98.7%.

B. Alumacoat II 1860 (black)

Material 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. Individual cylinders were coated (method not specified) 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 $25^\circ\text{C} \pm 1^\circ\text{C}$. 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 $60 \pm 5 \text{ ppm}$ 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 a $\text{pH} < 4$ and sealed with a polyolefin lined cap. Bottles were placed in a refrigerator until extracted and analyzed (maximum of 9 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 Point was run during the release rate experiment. The average release rate for the STP was $2.60 \mu\text{g}/\text{cm}^2/\text{day}$. Spike recoveries (30, 40, and $50 \mu\text{g Sn/L}$) ranged from 89.5% to 108.7%, with an overall average value of 98.7%.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

Not applicable.

TRIBUTYL TIN METHACRYLATE

Page _____ is not included in this copy.

Pages 6 through 10 are not included in this copy.

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