

# Update of DPR's Copper Based Antifouling Paint Reevaluation

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Reevaluation Coordinator

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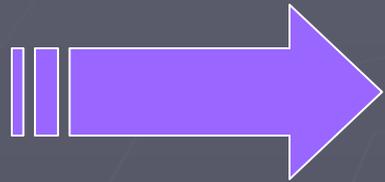
# History

- ▶ Amounts of copper being found in the California waterways
  - Preliminary water samples were above the California Toxics Rule.
  - Regional or Statewide?

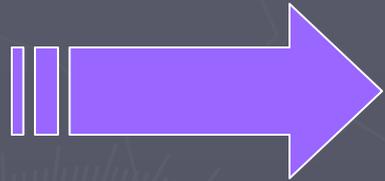
# Registrants of Copper Based Boat Paints

- ▶ Blue Water Marine Paint
- ▶ Flexabar Corporation
- ▶ Flexdel Corporation
- ▶ Hempel Coatings (USA) Inc.
- ▶ International Paint, LLC
- ▶ Jotoun Paints, Inc.
- ▶ Kop-Coat, Inc.
- ▶ Marine Development & Research Corp.
- ▶ New Nautical Coatings, Inc.
- ▶ Rust-Oleum Corporation
- ▶ Sigmakalon USA LLC
- ▶ The Sherwin-Williams Co.

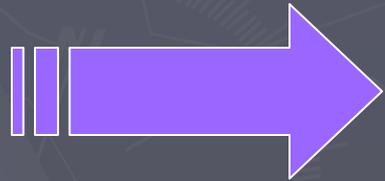
# Registrant's Time Frame Requirements



Compliance proposal.



Submission of a paint type categorization (Appendix A).



Submission of existing leach rate data.



Submission of a mitigation strategy.

# Categorization of Paint Types

## Appendix A

Paint Type Qualifier	Paint Type	Antifouling Method	Environmental Considerations	Durability
<b>A</b>	<b>Soft Sloughing</b>	Free leaching & soft. Paint erodes until completely disintegrated. Up to 50% copper	Potential to release much toxicant due to uncontrolled sloughing	1 year or less
<b>B</b>	<b>Epoxy Ester, Conventional</b>	Hard, smooth finish. Releases toxicant by leaching. Up to 76% copper	Initial high release of toxicant, replaced by even copper leaching	approx. 2 years
<b>C</b>	<b>Vinyl, Conventional</b>	Hard, smooth finish. Releases toxicant by leaching. Up to 76% copper	Initial high release of toxicant, replaced by even copper leaching	approx. 2 years
<b>D</b>	<b>Vinyl, Thin Film PTFE</b>	Hard, smooth finish. Releases toxicant by leaching. Up to 42% copper	Initial high release of toxicant, replaced by even copper leaching	1 – 1.5 years
<b>E</b>	<b>Copolymer, Ablative</b>	Continuously sheds outer layer to release toxicant Up to 58% copper	Limited & controlled release of copper over longer period of time.	1 year plus
<b>F</b>	<b>Water-based, Ablative</b>	Continuously sheds outer layer to release toxicant Up to 64% copper	Limited & controlled release of copper over longer period of time.	approx. 2 years
<b>G</b>	<b>Water-based, Conventional</b>	Hard finish, releases toxicant by leaching. Up to 50% copper.	Initial high release of toxicant, replaced by even copper leaching.	1 – 1.5 years

# Paint Categorization Results

Paint Type Category	# of Pesticide Products
Copolymer, Ablative	78
Epoxy Ester, Conventional	68
Vinyl, Conventional	12
Water-based, Ablative	7
Water-based, Conventional	6
Soft Sloughing	2
Vinyl, Thin Film PTFE	none

# Submission of Leach Rate Data

- ▶ Provide leach rate data generated using either ASTM or ISO methods:
  1. American Society for Testing Method (ASTM) - Organotin Release Rates of Antifouling Coating Systems in Sea Water (ASTM D5108-90);
  2. ASTM Test Method - Standard Test Method for Determination of Copper Release Rate from Antifouling Coatings in Substitute Ocean Water (ASTM D6442-06).
  3. International Organization for Standardization (ISO) "Paints and Varnishes – Modeling of biocides release rate from antifouling paints by mass balance calculation" (ISO 10890:2010).

# Submission of Mitigation Strategies

- ▶ Identify and submit specific mitigation strategies to reduce dissolved copper concentrations below California Toxic Rule (CTR) or regionally applicable standards.
- ▶ Received some mitigation strategies for consideration.

# Additional Item for the Reevaluation

- ▶ Increased scope of the copper into the waterways.
  - Study protocol regarding underwater hull cleaning.
  - To be submitted by July 23, 2011.

# California Senate Bill 623

- ▶ Copper based marine anti-fouling paint ban timelines:
  - January 1, 2015 → No sales
  - January 1, 2019 → No applications or use
- ▶ Recent Developments

# Questions?

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