



December 8, 2015

Ann Prichard  
California Department of Pesticide Regulation  
Pesticide Registration Branch  
P.O. Box 4015  
Sacramento, CA 95812

**Subject: Request for DPR Surface Water Protection Program Review: Registration Applications – Cupron Anti-Fungal Fibers & Fabrics II and III (Tracking Nos. 272556 and 272555)**

Dear Ms. Prichard:

On behalf of the Bay Area Clean Water Agencies (BACWA), we thank you for the opportunity to provide input into DPR's review of registration applications for the proposed new pesticide products Cupron Anti-Fungal Fibers & Fabrics II and Cupron Anti-Fungal Fibers & Fabrics III, both containing cuprous oxide. These registration applications propose significant expansions of the approved use of cuprous oxide for fabric treatment.

BACWA's members include 55 publicly owned wastewater treatment facilities and collection system agencies serving 6.5 million San Francisco Bay Area residents. We take our responsibilities for safeguarding receiving waters seriously and are very concerned about discharges of pesticides into wastewater systems that may compromise effluent quality, biosolids reuse, and compliance with NPDES permit requirements.

When cuprous oxide enters the environment it can become copper, which is highly toxic to aquatic life at low concentrations, is persistent and bioaccumulative, and is one of the nation's most common causes of water quality impairment. We know that DPR is keenly aware of California's copper water pollution challenges, as DPR has long worked to address pesticide contributions. We greatly appreciate DPR's 1996 action to prohibit the sale and use of copper-based root control products in the San Francisco Bay area, which DPR took to protect San Francisco Bay Area POTWs. The San Francisco Bay Area has invested millions of dollars to address copper water pollution, which today is closely managed through a special water quality program in the San Francisco Bay Regional Water Quality Control Board's Basin Plan. Depending on copper concentrations in the Bay, this program may require wastewater agencies with increasing copper effluent levels to develop and implement plans to control these increasing levels. If use of cuprous oxide causes copper effluent concentrations to grow, it will be challenging and costly to comply with this requirement.

Since these products create a clear pathway for copper to enter the sanitary sewer, we request that DPR's Surface Water Protection Program review the applications before registration to fully assess the potential for cuprous oxide to impact water quality and wastewater treatment plant

biosolids. We have attached a 2013 letter to DPR that provides background information on the scientific and water quality regulatory issues related to this registration application and lists the specific topics that we request DPR evaluate.

Thank you for your consideration of our comments. If you have any questions, please contact BACWA's Project Managers, Melody LaBella, at (925) 229-7370 or [mlabella@centralsan.org](mailto:mlabella@centralsan.org) or Karin North at (650) 329-2104 or [Karin.north@cityofpaloalto.org](mailto:Karin.north@cityofpaloalto.org).

Respectfully Submitted,

David R. Williams  
Executive Director  
Bay Area Clean Water Agencies

Enclosure – BACWA letter to DPR, “Registration Applications – Cupron Antifungal Fibers & Pro Fibers (Tracking Nos. 260203 and 260213) and Cliniweave Av Liquid (Tracking No. 259352),” December 6, 2013. (Since DPR already has the attachments to this letter, they are not enclosed).

cc: Marylou Verder-Carlos, California Department of Pesticide Regulation  
George Farnsworth, California Department of Pesticide Regulation  
Nan Singhasemanon, California Department of Pesticide Regulation  
Jennifer Teerlink, California Department of Pesticide Regulation  
Patti TenBrook, U.S. EPA Region 9  
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December 10, 2013

Ann Prichard  
California Department of Pesticide Regulation  
Pesticide Registration Branch  
P.O. Box 4015  
Sacramento, CA 95812

**Subject: Registration Applications – Cupron Antifungal Fibers & Pro Fibers (Tracking Nos. 260203 and 260213) and Cliniweave Av Liquid (Tracking No. 259352)**

Dear Ms. Prichard:

On behalf of the Bay Area Clean Water Agencies (BACWA), we thank you for the opportunity to provide input into DPR's review of registration applications for the following new pesticide products with antimicrobial active ingredients:

- Cupron Inc.'s Antifungal Fibers (Tracking #260203) – Copper oxide
- Cupron Inc.'s Pro Fibers (Tracking #260213) – Copper oxide
- Cliniweave Av Liquid (Tracking #259352) – Polyhexamethylenebiguanide (PHMB)

BACWA requests that these three registration applications be reviewed by DPR's Environmental Monitoring Branch Surface Water Protection Program to fully assess the potential for copper oxide and PHMB to impact water quality and wastewater treatment operations. We provide background information and list the specific topics that we request DPR evaluate below.

BACWA's members include fifty-five publicly owned wastewater treatment facilities and collection system agencies serving 6.5 million San Francisco Bay Area residents. We take our responsibilities for safeguarding receiving waters seriously and are very concerned about discharges of pesticides into wastewater systems that may compromise effluent quality, biosolids reuse, and compliance with NPDES permit requirements.

### **BACWA's Interest in Antimicrobial Registration Applications**

BACWA and our colleagues in the wastewater community have noted with some alarm that new product lines treated with antimicrobials, such as copper oxide and PHMB, are quickly expanding. For example, the applicants, Cupron Inc. and Intelligent Fabrics Technologies Inc., sell many fabric products such as socks, pillowcases and gloves,<sup>1</sup> as well as sports clothing and hospital gowns and sheets.<sup>2</sup> Washing these items could result in antimicrobial active ingredients washing out of the fabrics and into the sanitary sewer. We have attached four studies that have shown that antimicrobial-treated products slough down the drain when they are washed.

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<sup>1</sup> Cupron, Inc., <http://www.cupron.com/>, last viewed November 25, 2013.

<sup>2</sup> Intelligent Fabric Technologies (North America), Inc. <http://iftna.com/clinaweave-2/>. Last viewed December 4, 2013.

When copper oxide enters the environment it can become copper, which is highly toxic to aquatic life at low concentrations, is persistent and bioaccumulative, and is one of the nation's most common causes of water quality impairment. We know that DPR is keenly aware of California's copper water pollution challenges, as DPR has long worked to address pesticide contributions to copper water pollution. We greatly appreciate DPR's 1996 action to prohibit sale and use of copper-based root control products in the San Francisco Bay area, which DPR took to protect San Francisco Bay Area POTWs. The San Francisco Bay Area has invested millions of dollars to address copper water pollution, which today is closely managed through a special water quality program in the San Francisco Bay Regional Water Quality Control Board's Basin Plan. Depending on copper concentrations in the Bay, this program may require wastewater agencies with increasing copper effluent levels to develop and implement plans to control these increasing levels. If use of copper oxide causes copper effluent concentrations to grow, it will be challenging and costly to comply with this requirement.

For its part, PHMB is resistant to degradation and may pose a threat to wastewater treatment operations. Specifically, when the US Environmental Protection Agency reviewed PHMB's registration last year, docket documents indicated that it could potentially inhibit activated sludge respiration and because it sorbs to solids, could result in problems with biosolids management.<sup>5</sup> Since PHMB has numerous other uses, such as swimming pool treatments, it is important that DPR look at this registration application in the cumulative context of all PHMB uses.

### **Request for Surface Water Protection Program Review**

Since these pesticides have a clear pathway to the sanitary sewer, we request that DPR's Surface Water Protection Program review the applications before registration. We believe there are fundamental questions that need to be answered before biocides with pathways to the sanitary sewer are registered. We request that DPR ask the following questions for any biocides:

- What quantities of copper and PHMB are now being used as antimicrobial agents in residential, commercial and industrial products, both those registered and not registered by EPA?
- What is the anticipated removal efficiency of PHMB antimicrobial agents in wastewater treatment plants?
- What fraction of PHMB will remain in the treated wastewater and what fraction will remain in the biosolids?
- What quantities and concentrations of and copper and PHMB will be released to wastewater treatment plants and the natural environment from the cumulative total of these and other copper and PHMB-containing products being marketed and registered?
- What affect does PHMB have on biological wastewater treatment processes such as those used in municipal wastewater treatment plants? To what extent could PHMB reduce treatment effectiveness, increasing releases of other pollutants into surface waters?
- What impacts will there be on the beneficial use of biosolids?

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<sup>3</sup> US EPA. 2012. PHMB Registration Review Preliminary Work Plan, Docket # EPA-HQ-OPP-2012-0341).

### **Evaluate All Use Patterns for Environmental Exposures**

BACWA requests that DPR evaluate all use patterns for potential environmental exposures for the PHMB product, which would have multiple uses. To illustrate how current uses may result in exposures in the aquatic and terrestrial environments, please see our conceptual model for nanosilver (attached). While the conceptual model was created for nanosilver, it is applicable to any antimicrobial that is used in numerous types of products.

### **Protect Water Quality**

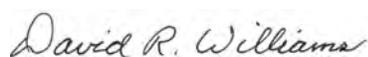
Under the Clean Water Act, wastewater facilities are subject to NPDES permits, which include stringent limits for toxicity. Exceeding these limitations has serious consequences. In addition to the potential for adverse environmental impacts, the costs of non-compliance with Federal Clean Water Act requirements can mount quickly: staff must be deployed to first identify the cause of toxicity to the treatment organisms and then to investigate the source of the toxicity. Both may involve extensive sampling, costly laboratory fees and significant staff resources. The cost of a toxicity identification evaluation (TIE) can vary widely from \$10,000 to well over \$100,000 depending on complexity and persistence of the toxicant. Once identified, the cost to treat or remove the toxicity causing compound(s) can vary dramatically.

When surface water bodies become impaired by pollutants, POTWs discharging to the water bodies can be impacted through additional requirements established through special management programs (as currently exists for copper in San Francisco Bay) or as part of Total Maximum Daily Loads (TMDLs) set for the water bodies by the Water Boards. When the toxicant is a registered pesticide, because California prohibits local regulation of pesticides, there are few ways for treatment plants to mitigate the problem other than extremely costly treatment plant upgrades.

The cost to wastewater facilities and other dischargers to comply with these requirements can be up to millions of dollars per water body per pollutant. It is therefore imperative that DPR exercise its regulatory authority to fully assess the potential for copper oxide and PHMB to impact water quality and restrict uses so that water quality impacts are prevented. If DPR pesticide regulators do not take preventative action, wastewater agencies in California may be subject to mandatory minimum penalties, administrative civil liabilities, fines and other enforcement actions.

Thank you for your consideration of our comments. If you have any questions, please contact BACWA's Project Manager, Melody LaBella, at (925) 229-7370 or [mlabella@centralsan.org](mailto:mlabella@centralsan.org).

Sincerely,



David R. Williams, P.E.  
Executive Director

Enclosures

1. Kemikalieinspektionen (KEMI) (2011). Antibacterial substances leaking from the clothes by washing. The analysis of silver, triclosan and triclocarban in textiles before and after washing. Sweden, Swedish Chemicals Agency. (See English Summary, p. 7)
2. Benn, T. M. and P. Westerhoff (2008). Nanoparticle silver released into water from commercially available sock fabrics. *Environmental Science & Technology*, 42(11): 4133-4139.
3. Kiser, M. A., P. Westerhoff, et al. (2009). Titanium Nanomaterial Removal and Release from Wastewater Treatment Plants. *Environmental Science & Technology*, 43(17): 6757-6763.
4. Geranio, L, M. Heuberger and B. Nowack (2009). The Behavior of Silver Nanotextiles during Washing. *Environmental Science and Technology*, 2009, 43 (21), pp. 8113–8118.
5. BACWA. 2009. Nanosilver Wastewater Conceptual Model.

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