

EPA-Metals Associations Cooperative Research and Development Agreement

Summary

EPA has entered into a Cooperative Research and Development Agreement (CRADA) with eight metals associations in order to leverage the scientific expertise and resources of scientists inside and outside of the agency to better protect aquatic life. All approaches and products developed through the CRADA will be open for external peer review and public comment.

EPA will work collaboratively with the metals associations to develop a simplified modeling approach that can predict the bioavailability and toxicity of metals in the aquatic environment using the most current science.

Using the resulting peer-reviewed modeling approach, EPA plans to develop updated Aquatic Life Ambient Water Quality Criteria for metals to better support states, territories and tribes with criteria that reflect the most current science and are easier to implement than current approaches.

Background

EPA has recommended criteria for metals that were developed over the last three decades. Current science demonstrates that water chemistry parameters (e.g., pH, dissolved organic carbon, and hardness) can affect the toxicity of metals by affecting the bioavailability of metals in the water to aquatic species. Several criteria (Freshwater Copper, Draft Saltwater Copper, and Draft Aluminum) have already been updated to reflect these relationships.

Approach:

EPA plans to leverage the expert knowledge of scientists in the following eight organizations: the Aluminum Association, Aluminum REACH Consortium (ARC), Cobalt Institute, International Copper Association, Copper Development Association, International Lead Zinc Research Organization, International Zinc Association, NiPERA Inc., and to complete this work in two phases.

Phase I – Development of a common modeling approach to predict the bioavailability of metals

During this phase the collaborators will:

- Compare the accuracy and usability of a variety of modeling approaches for predicting bioavailability and toxicity of metals to aquatic organisms under various environmental conditions. This work will consider the range of water chemistry parameters needed to predict metals toxicity to aquatic life.
- Identify a uniform approach for predicting bioavailability and toxicity of metals to aquatic organisms.
- Submit the uniform modeling approach to external scientific peer review and solicit public comments.

Phase II – Development of models to predict the bioavailability and toxicity of specific metals

- Once a uniform modeling approach is identified and externally-peer reviewed, EPA will work with the metals associations to develop and optimize the models for specific metals.

EPA plans to use the models developed under this agreement to update and develop Aquatic Life Ambient Water Quality Criteria for metals.

Where can I find more information?

For more information on this CRADA please contact Kathryn Gallagher at Gallagher.Kathryn@epa.gov and visit our page: [Aquatic Life Criteria and Methods for Toxics](#).
