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October 11, 2016

Ms. Michelle Arsenault
National Organic Standards Board
USDA-AMS-NOP
1400 Independence Ave., SW
Room 2648-S, Mail Stop 0268
Washington, DC 20250-0268

Re. CS: Ammonium citrate and ammonium glycinate

These comments to the National Organic Standards Board (NOSB) on its Fall 2016 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

In reviewing this substance, the NOSB must apply the criteria in the Organic Foods Production Act (OFPA), that its use—
(i) would not be harmful to human health or the environment;
(ii) is necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products; and
(iii) is consistent with organic farming and handling.[1]

The petitioner has asked that two chelating agents be added to the National List –ammonium citrate and ammonium glycinate. The petitioner stated that neither material would be used in organic production, but would be used in producing chelated minerals that would be used in crop production.

The law and science suggest that the petitions request allowance of the wrong substances and that board consideration of the petitions as submitted fails to address OFPA criteria appropriately –leading to overemphasis of some hazards and neglect of others, as well as a failure to include the required discussion of the necessity for the chelated minerals. Additionally, if the materials were placed on the National List as petitioned, it would lead to unforeseen use associated with significant hazards.

[1] OFPA §6517(c)(1)(A). Further details at OFPA §6518(m).

The petitioner should be trying to modify:

> §205.601(j)(6) Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing.
> (i) Soluble boron products.
> (ii) Sulfates, carbonates, oxides, or silicates of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.

To read:

> (6) Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing.
> (i) Soluble boron products.
> (ii) Sulfates, carbonates, oxides, ~~or~~ silicates***, citrates, or glycinates*** of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.

Impacts of Ammonium Glycinate and Ammonium Citrate Applied to Field

There is also a listing for a chelating agent on the National List:

> §205.601(j) As plant or soil amendments.
> (4) Lignin sulfonate—chelating agent, dust suppressant.

In addition, humic acids are also used as "chelating agents:"

> §205.601(j) As plant or soil amendments.
> (3) Humic acids—naturally occurring deposits, water and alkali extracts only.

The use of these materials involves the addition of lignin sulfonate or humic acid to the soil. Our understanding is that the application of ammonium glycinate (in particular) to the soil could have effects that are not anticipated by this petition. The petition should not go forward without a technical review that investigates these potential impacts of both chelating agents.

Micronutrient Glycinates and Citrates

Because the petitions address ammonium citrate and ammonium glycinate and not the chelates that would actually be added to the crop, they do not address the impacts of adding metal glycinates or citrates –desired or not. The bond of the chelating agent with the metal is described as "tight." An example of a glycinate that forms a tight bond with micronutrient metals is the herbicide glyphosate, found in Roundup™. It is an effective herbicide because it blocks the availability of micronutrient metals to plants. Thus, another issue that should be addressed in considering the substances actually added to crop fields is whether the bonds with the metals are so strong that they make the chelate ineffective as a micronutrient source.

In our conversations with experts on glyphosate and glycinate chemistry and toxicology, as well as in the scientific literature,[2] we have also been warned of potential health effects of residues of glycinates. We are warned that glycinate salts are neuroinhibitory, can affect immune function, and contribute to hyperoxaluria, including oxalate kidney stones. The impacts of excessive concentrations of the micronutrients in food also need to be considered.

Therefore, we suggest that, before approving these petitions, a technical review (TR) is completed with an evaluation of the effect of the glycinates and the chelates. We also urge that the NOSB receive more information about chelating agents in general –how natural adsorbing chelating agents differ in their chemistry and impacts from chemical chelating agents like glycinate and EDTA. In previous comments, we recommended experts with whom TR contractors should consult.

Conclusion

We support the CS proposal to reject both of these petitions. Additionally, we emphasize that that the NOSB should not consider the addition of these materials to the National List in the future before conducting a TR that evaluates compliance with OFPA criteria for listing.

Thank you for your consideration of these comments.

Sincerely,

Terry Shistar, Ph.D.
Board of Directors

[2] See research by Stephanie Seneff, Anthony Samsel, and others at http://people.csail.mit.edu/seneff/, especially A. Samsel and S Seneff. "Glyphosate pathways to modern diseases V: Amino acid analogue of glycine in diverse proteins," *Journal of Biological Physics and Chemistry* 2016;16: 9-46.