



BEYOND PESTICIDES

701 E Street, SE ■ Washington DC 20003
202-543-5450 phone ■ 202-543-4791 fax
info@beyondpesticides.org ■ www.beyondpesticides.org

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. LS: Sodium bisulfate

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 use of sodium bisulfate as petitioned does not meet OFPA criteria of absence of harm to human health and the environment, essentiality, or compatibility with organic production.

Sodium bisulfate poses hazards to human health, agroecosystems, and the environment.

Human health impacts

Sodium bisulfate is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) in that it causes serious eye irritation, may cause respiratory irritation, and may be harmful if swallowed.² The TR says, “Sodium bisulfate is harmful if swallowed in large amounts (ScienceLab.com MSDS 2014). Symptoms of swallowing more than one tablespoon of sodium bisulfate include burning pain in the mouth, diarrhea, vomiting and severe low blood pressure. If sodium bisulfate touches

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

² TR, lines 507-509.

human skin, symptoms may include blisters, burns and painful red skin. If sodium bisulfate gets in eyes there may be decreased vision, eye pain, eye redness and tearing.”³

Adverse Impacts on the agroecosystem

Hypochlorite compounds react with sulfuric acid to form chlorine gas. Sodium bisulfate should not, therefore, be used when sodium hypochlorite has been used for disinfecting and sanitizing poultry facilities.⁴

Adverse impacts on the environment

Sodium bisulfate “is likely to be acutely harmful to aquatic life.”⁵ It acts as a biocide and kills at least some insects.⁶

Lack of Essentiality: Sodium bisulfate is not essential for organic production.

Like the other litter treatments, the effect is temporary, so the permanent reduction of ammonia emissions should not be taken as a reason for using sodium bisulfate. The TR says,

The petitioner states that ammonium sulfate remains bound in the litter as the pH increases. This statement was not substantiated by the literature. A two-year study comparing ammonia emissions from sodium bisulfate-treated and untreated broiler houses found that the total level of emissions from a house with treated built-up litter was the same as that of a house with untreated built-up litter, although the timing of the emissions were different. The pattern of ammonia emission from the house with the treated built-up litter suggests that the ammonia held in the acid-treated litter at the beginning of the flock was released in the latter part of the flock’s grow-out period. Similar results were obtained in pen studies. Additional sodium bisulfate application is therefore required for ongoing ammonia control throughout the life of the flock.⁷

The Technical Reviews for the litter additive materials cite some alternative substances. Yucca root, a diet supplement, reduces ammonia production.⁸ Clinoptilolite, diatomaceous earth, and montmorillonite are naturally-occurring minerals that absorb ammonia, reducing volatilization. The chemical and physical properties of peat make it effective in ammonia management. There are currently several OMRI-listed alternatives, and one approved by EPA’s Design for the Environment program.⁹

More importantly, sodium bisulfate is used to support a particular type of management, in which “litter is reportedly reused for up to 35 flocks before it is changed,” since typically sodium bisulfate is

³ TR lines 416-420.

⁴ TR lines 440-441.

⁵ Petition, p. 4.

⁶ TR, lines 122-130.

⁷ TR, lines 196-204.

⁸ Acid activated bentonite TR lines 583-587.

⁹ Acid activated bentonite TR lines 435-444.

not applied to fresh litter, but rather to litter that is being re-used for subsequent flocks of birds.¹⁰ Since the C:N ratio of poultry litter is already much lower than required by NOP regulations for composting,¹¹ the reuse of litter for many flocks only reduces the likelihood that composting will be used to manage manure and amend organic soil. In view of the many benefits of compost for both disposal of manure and growing crops, management systems that discourage composting should not be promoted through the allowance of synthetic inputs.

The TR outlines ways to reduce ammonia in poultry houses without the use of sodium bisulfate. One option is increasing ventilation. Since young birds are susceptible to chilling, young chicks (less than 10 days old) may be housed separately, with low-hung infrared heaters. Assuming decreased ventilation is required to ensure warm temperatures for brooding chicks, starting with fresh litter containing essentially zero ammonia, combined with the comparatively low waste production of chicks (and therefore nitrogen) compared to larger birds could eliminate the necessity for sodium bisulfate. Ventilation can be increased for older birds. Moisture management can be improved by eliminating leaks and spills. Changing litter more often would reduce ammonia problems.¹²

Lack of Compatibility with an Organic System: Sodium bisulfate is not compatible with organic production.

When applied to agricultural fields, litter treated with sodium bisulfate acts as a synthetic source of the of nitrogen sulfur, thus acting as a synthetic fertilizer.¹³ It thus makes poultry litter unavailable for use in organic crop production. And it inhibits the use of poultry manure in compost because of yet lower C/N ratios.

Conclusion

Because the petitioned use of sodium bisulfate does not meet OFPA criteria of absence of harm to human health and the environment, essentiality, or compatibility with organic production, the petition should be denied, as proposed by the Livestock Subcommittee.

Thank you for your consideration of these comments.

Sincerely,



Terry Shistar, Ph.D.
Board of Directors

¹⁰ Aluminum sulfate TR lines 609-609.

¹¹ Moore, P. A., Daniel, T. C., Sharpley, A. N., & Wood, C. W. (1995). Poultry manure management: Environmentally sound options. *Journal of soil and water conservation*, 50(3), 321-327.

¹² TR lines 560-681.

¹³ TR lines 457-460; 473-474; Table 2.