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National Organic Standards Board
USDA-AMS-NOP
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Room 2648-S, Mail Stop 0268
Washington, DC 20250-0268

Docket ID # AMS-NOP-22-0042

Re. CS: Potassium hydroxide

These comments to the National Organic Standards Board (NOSB) on its Fall 2022 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.

Potassium hydroxide is petitioned for use in the processing of whole fish into synthetic liquid fish products for use in organic fertilizer.

This use of potassium hydroxide is incompatible with organic production.

The Organic Foods Production Act (OFPA) §6517(c)(1)(B) allows synthetic materials to be used in organic production only if:

(B) the substance—

(i) is used in production and contains an active synthetic ingredient in the following categories: copper and sulfur compounds; toxins derived from bacteria; pheromones, soaps, horticultural oils, fish emulsions, treated seed, vitamins and minerals; livestock parasiticides and medicines and production aids including netting, tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleansers; or

(ii) is used in production and contains synthetic inert ingredients that are not classified by the Administrator of the Environmental Protection Agency as inerts of toxicological concern;

The Crops Subcommittee (CS) repeats the claim of the petitioner that potassium hydroxide is eligible for listing because it is a production aid. We have repeatedly asked that the NOSB define “production aid.” OFPA does not define the term, except by example (“including netting, tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleansers”). Potassium hydroxide used for pH adjustment in the processing of fish does not closely resemble any of the examples in this list. Therefore, it is not a production aid and is not eligible for listing as such on the National List.

Potassium hydroxide must be evaluated in the context of its use.

The petitioned use of potassium hydroxide is pH adjustment in processing whole fish for organic fertilizer. The petitioner claims “100% of the fish we use in our process is invasive carp (sourced from an invasive species removal program run by the Illinois Department of Natural Resources). Per USDA/NOP guidelines whole fish may only be used if they are invasive species, as removal of the invasive species fish for production of fertilizer is seen as an environmental benefit in this special case.” If potassium hydroxide will be used only to process invasive carp, then the motion should include an annotation to that effect. However, we also object to the removal of nutrients—even in the form of so-called “invasive” fish—from aquatic ecosystems in order to feed agriculture.

Liquid fish products remove valuable nutrients from marine/aquatic ecosystems and may harm agroecosystems.

Fish that are “invasive” or do not have commercial value may have ecological value.¹ Use of discarded fish or fish parts as fertilizer may also remove food from marine ecosystems.²

Acids used to manufacture liquid fish products may cause harm to the environment if misused or improperly disposed. Some liquid fish products are acidic, and too strong a solution can burn plants.³ Fish products may contain persistent, bioaccumulative toxic chemicals that can affect crops and livestock over the long term.⁴

Synthetic liquid fish products are not essential.

If fish are used as organic crop inputs, the fish may be preserved naturally. The Liquid Fish Products technical review says,⁵

[An] option is to ferment the fish and fish waste by adding a carbohydrate source, such as molasses, along with *Lactobacilli* starter culture (lactic acid producing bacteria).

Lactobacilli convert sugar into lactic acid, which preserves the fish and creates favorable

¹ <http://discovermagazine.com/2001/sep/featfish/?searchterm=menhaden>.

² <http://www.scotsman.com/news/environment/ban-on-fishing-discards-may-damage-ecosystem-1-3408818>.

³ 2006 TR Liquid Fish Products, lines 173-181.

⁴ José G. Dórea, 2008. Persistent, bioaccumulative and toxic substances in fish: Human health considerations. *Science of the Total Environment*, Volume 400, Issues 1–3, 1 August 2008, Pages 93–114. <http://www.sciencedirect.com/science/article/pii/S0048969708006748>.

⁵ 2006 TR Liquid Fish Products, lines 143-150.

conditions for the production of silage. Some types of *Lactobacilli* produce other substances in addition to acid, such as antibiotics or bacteriocins, which help to limit the growth of spoilage bacteria. To obtain the optimum temperature of the fermentation process (25° to 30°C) additional heating may be required during certain times of the year (Archer, 2001). Fish hydrolysate also can be pasteurized in a dehydrator or spray-dryer to form spray-dried fish hydrolysate.

In addition, other natural materials that could substitute for synthetic fish products are manure, compost, aquatic plant products, blood meal, bone meal, compost, feather meal, kelp meal, guano, and other nonsynthetic animal or plant products.⁶

Synthetic liquid fish products are incompatible with organic production.

In an organic system, nutrients are provided by the soil, and the farmer feeds the soil natural organic and mineral materials. If synthetic nutrients are to be used at all, it must be as an exception and in concert with soil building practices that restore the soil balance naturally.

The interaction of potassium hydroxide and neutralizing acids has not been examined.

The CS proposal skips over the evaluation of the reaction of potassium hydroxide with the neutralizing acid (stated to be phosphoric acid). The proposal states, "Potassium hydroxide is added to a reactor vessel along with fish and water, agitated with heat, and eventually stabilized (neutralized) with phosphoric acid." It also says, "For the petitioned use there will be no environmental contamination since the product will be neutralized before it is used in the environment." It would appear from this description that the chemical result of the reaction of potassium hydroxide and phosphoric acid. The 2021 Phosphoric Acid Technical Review identifies additional environmental concerns. The thermal process of production of phosphoric acid is energy intensive and may contribute to elevated levels of carbon dioxide and results in release of polluting particles of phosphoric acid and phosphorous oxide. The wet process may result in release of toxic fluorine compounds and gypsum.⁷ In addition, phosphoric acid may contain heavy metal residues that may be carried over to the soil.⁸

Conclusion

The petition for potassium hydroxide should be denied because it is inconsistent with organic production, may pose environmental hazards, and is not essential for organic production.

Thank you for your consideration of these comments.

Sincerely,



⁶ 2006 TR Liquid Fish Products, lines 239-246.

⁷ Technical Evaluation Report, 2021. Phosphoric acid. Lines 571-594.

⁸ Technical Evaluation Report, 2021. Phosphoric acid. Lines 552-555; Table 3.

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Board of Directors

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