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Ms. Michelle Arsenault
National Organic Standards Board
USDA-AMS-NOP
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Docket # AMS-NOP-23-0026

Re. CS: Potassium sorbate

These comments to the National Organic Standards Board (NOSB) on its Fall 2023 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 eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

Beyond Pesticides opposes the listing of potassium sorbate as petitioned. Potassium sorbate is petitioned as a “production aid” under §601(e) as insecticides (including acaricides or mite control) and §601(i) as plant disease control.

[Potassium sorbate is not in any category of §6517\(c\)\(1\)\(B\)\(i\).](#)

Section 6517(c)(1)(B)(i) of the Organic Foods Production Act (OFPA) states that an active material is eligible for listing on the National List if it “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.” The petition asks that potassium sorbate be added as a production aid. Potassium sorbate is not a production aid. We have requested that the NOSB develop a definition of “production aid,” which is defined in OFPA only by example. The examples given are “netting,

tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleansers.” “Production aid” should not be used as a catch-all for anything that does not fit into another category. If that had been the intention of the framers of OFPA, there would be no need for §6517(c)(1)(B)(i). **Potassium sorbate as an insecticide or plant disease control is not comparable to these examples. Therefore, it is not eligible for listing.**

The petition gives a confused statement of the use of potassium sorbate in organic crop production.

Under section A.4, the petition states, “OR-159-B, the proposed end-use fungicide/insecticide contains 45% potassium sorbate to be tank mixed at 1% v/v solution to target crop disease and insects such as powdery mildew, downey [sic] mildew and whitefly. The product is used on a wide range of crops including grapes, cucurbits, roses, stone fruit, pome fruit, nuts, solanaceae vegetables and cannabaceae plants.” Under section A.10 describing mode of action, the petition states, “Potassium sorbate has a contact mode of action. For example, mold inhibitors such as potassium sorbate cannot be effective unless they are completely and thoroughly distributed throughout the feed. Ideally, this means that the entire infested surface of each feed particle or crop should come in contact with the inhibitor and that the inhibitor should also penetrate so that interior molds will be inhibited. The particle size of the carriers for mold-inhibiting chemicals should be small so that as many particles of feed as possible are contacted.” This is a completely different use from that being petitioned.

The petition states, “The petitioned use, and the only crop application supported in the literature, is as a seed treatment.” This statement conflicts with use statement above and statements on the attached label, including:

“OR-159-B is a contact fungicide for field and greenhouse applications. Direct contact with the target organism is required for optimal control. Ensure application covers both sides of leaves.”

“Apply OR-159-B as a foliar treatment at the application rates listed below.”

The NOSB cannot properly evaluate a material without a clear statement of its use.

Potassium sorbate poses hazards to humans and the environment.

The petition presents tables (Tables 1-3) containing data on the acute, subchronic, and chronic toxicity of potassium sorbate. Of the 18 possible results, 12 are reported as “Not found.” “Not found” cannot be taken to be synonymous with “Negative.” Much of the narrative on human health effects is filler—describing, for example, the use of potassium sorbate as a food preservative. However, the narrative does state that potassium sorbate produces sorbic acid once dissolved in water (which is intended in using the material.)

The petition gives the following quote from OMRI:

“Potassium sorbate goes into solution as ionic potassium and sorbic acid. **The degradation products are more hazardous than the product itself** (Binas, 2001). Like potassium sorbate, **sorbic acid has antifungal and antimicrobial activities. Sorbic acid is**

reported to have synergistic effects with sodium nitrite (Banerjee and Giri, 1986). **Sorbate and nitrite form several species of direct acting mutagens and genotoxic agents**, including ethylnitrolic acid and 1,4-dinitro-2- methylpyrrole (Hartman, 1983). Various microorganisms play a role in this transformation (Shu et al., 1991). This has been studied primarily in the context of sodium nitrite and potassium sorbate as food additives, and not under field conditions. However, **sodium nitrate is used as a fertilizer on some organic farms in the United States. Nitrite can be formed reduced by denitrification and reduction of sodium nitrate under conditions of poor drainage and anaerobic conditions** (see Brady, 1974.)” [Emphasis added.]¹

Thus, the use of potassium sorbate on organic farms has a potential to kill soil microbial life, and the petition says, “Sorbic acid should inhibit the growth of soil bacteria and fungi.” It may also expose organic farmers to mutagenic and genotoxic chemicals. In addition, the petition says, “Potassium sorbate is a category 2B serious eye damage/eye irritation health hazard with a WARNING signal word. If in eyes or exposed, rinse cautiously with water for several minutes. Medical attention is advised if irritation persists.”

The current use of potassium sorbate is not relevant to this petition.

The petition points out that potassium sorbate may be already used in organic production because it appears on EPA’s List 4A of “inert” ingredients. However, List 4A is no longer valid. The grandfathered use of a particular “inert” ingredient does not establish that it meets OFPA criteria for the use of a synthetic material, especially as an active ingredient. Furthermore, potassium sorbate does not appear on the list of “inert” ingredients currently used in organic production.² Potassium sorbate is currently allowed as a food use “inert” because it is exempted from the requirement of a tolerance under 40 CFR 180.950. Tolerances apply only to residues on food and not to effects on farmers, farmworkers, or soil organisms, all of which must be considered by the NOSB in its evaluation of materials for listing on the National List. Moreover, EPA’s evaluation does not consider whether the substance is needed.

Potassium sorbate is not necessary for organic production.

According to §6517(c)(1) of the Organic Foods Production Act (OFPA),

The National List may provide for the use of substances in an organic farming or handling operation that are otherwise prohibited under this chapter only if—

(A) the Secretary determines, in consultation with the Secretary of Health and Human Services and the Administrator of the Environmental Protection Agency, that the use of such substances—

(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

¹ The petition states “Directly referenced from <http://www.omri.org/Ksorbatefinal.pdf> (TAP report for crop use).” However, this url is not available.

² Shistar, T., 2017. “Inert” Ingredients in Organic Production.

(iii) is consistent with organic farming and handling;

....

In the Petition Justification Statement, the petitioner states, “[T]here are currently non-synthetic and natural substances that could be used in place of potassium sorbate. NOP list of allowed and prohibited substances, 7 CFR 205.601(e) lists additional actives approved for use as insecticide actives and 7 CFR 205.601(i) as plant disease control. Additionally, a search in the OMRI approved product database was conducted under “Crop Pest, Weed and Disease Control” keyword “fungicide” to find that 464 fungicide products are currently available in the market through OMRI certification.”

Therefore, the petitioner gives evidence that potassium sorbate is not necessary for organic production.

The technical review (TR) states, “Although KS [potassium sorbate] can be used in agricultural applications as a fungicide, bactericide, and algicide (Baker & Grant, 2018), a review of literature for this report did not identify any studies that specifically address the target organisms identified on the petitioned product’s label.”³ The petitioner needs to present data specific to the proposed use.

Conclusion

Potassium sorbate should not be approved for listing on §601 because it does not meet the OFPA requirements of necessity for organic production, absence of adverse effects on humans and the environment, and consistency with organic principles. Data specific to the proposed use have not been presented.

Thank you for your consideration of these comments.

Sincerely,



Terry Shistar, Ph.D.
Board of Directors

³ 2023 TR, lines 83-86.