Formal Recommendation
From: National Organic Standards Board (NOSB)
To: National Organic Program (NOP)

Date: October 22, 2021

Subject: Stabilized hydronium used as a processing aid in organic crop production

NOSB Chair: Steve Ela

The NOSB hereby recommends to the NOP the following:
None

Statement of the Recommendation:
The NOSB voted to classify stabilized hydronium as synthetic and voted unanimously to not add it to the National List based on OFPA 6518(m), availability of alternatives.

Rationale Supporting Recommendation:
Stabilized hydronium was petitioned for use in organic crop production through addition to the National List at 205.601(j)(7) as an organic processing aid. The NOSB rejected this petition by unanimous vote based on the availability of alternative practices and substances. The substance is a synthetic and there are already other practices and products that make this product unnecessary.

NOSB Vote:

Classification Motion:
Motion to classify hydronium as synthetic
Motion by: Rick Greenwood
Seconded by: Amy Bruch
Yes: 14 No: 0 Abstain: 0 Absent: 0 Recuse: 0

Motion Passed

National List Motion:
Motion to add hydronium to the National List at 205.601(j)(7) as an organic processing aid
Motion by: Rick Greenwood
Seconded by: Steve Ela
Yes: 0 No: 14 Abstain: 0 Absent: 0 Recuse: 0

Motion Failed

See recommendation below

National Organic Standards Board
Crops Subcommittee
Petitioned Material Proposal
Stabilized Hydronium used as a processing aid in organic crop production
July 23, 2021

Summary of Petition:
Hydronium is being petitioned for use as a processing aid for pH adjustment not below 5.0 and as a stabilizer in the production of animal manures. It would be used to reduce malodorous properties of manures.

Summary of Review:
A survey of regulations for organic production from a number of countries and international organizations indicates that hydronium is not included within the Canadian Organic Standards as an allowed material. CODEX Alimentarius does not include a listing for hydronium nor is there a listing in the Japan Agricultural Standard (JAS) for Organic Production. Based on data submitted by the manufacturer, hydronium acts as a biocide but has not been approved by the EPA for that use.

Category 1: Classification

1. For CROP use: Is the substance **Non-synthetic** or X **Synthetic?**
   Is the substance formulated or manufactured by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources? [OFPA §6502(21)] If so, describe, using NOP 5033-1 as a guide.

   Hydronium is a mixture of sulfuric acid and calcium hydroxide. The sulfuric acid is produced from sulfur dioxide collected in pollution control scrubbers and the calcium hydroxide is produced by hydrating calcium oxide. Hydronium is a manufactured compound.

2. Reference to appropriate OFPA category:

   Is the substance used in production, and does it contain an active synthetic ingredient in the following categories: [§6517(c)(1)(B)(i)]; 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?

   Hydronium was petitioned as an allowed synthetic substance for addition to the National List at 7 CFR §205.601 (j) 7. Hydronium is used as a production aid and although it contains sulfur, very little sulfur is left in the final product.

Category 2: Adverse Impacts

1. What is the potential for the substance to have detrimental chemical interactions with other materials used in organic farming systems? [§6518(m)(1)]

   As described in the petition, hydronium would be used in small amounts as an addition to manures during processing and would not be expected to cause detrimental chemical interactions.

2. What is the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment? [§6518(m)(2)]

   The compounds used to produce hydronium are listed as "food grade" and the company states that there are no hazardous compounds generated as by-products.

3. Describe the probability of environmental contamination during manufacture, use, misuse or disposal of such substance? [§6518(m)(3)]

   The technology used to produce hydronium is rated as "non-hazardous" as rated by 3rd party testing and EPA 6-pack testing. There is no discharge waste material or air emissions during production. The probability of environmental contamination during production is low.

4. Discuss the effect of the substance on human health. [§6517(c)(1)(A)(i); §6517(c)(2)(A)(i); §6518(m)(4)].

   Based on EPA 6-pack testing hydronium is rated as non-hazardous, has a corrosivity rating similar to distilled water and does not induce amide hydrolysis on plant, animal, or human tissue.

5. Discuss any effects the substance may have on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock. [§6518(m)(5)]

   Hydronium is used in very small quantities and would not be expected to have any physiological effects on soil organisms or interact with chemicals in the agroecosystem.

6. Are there any adverse impacts on biodiversity? (§205.200)

   Data submitted in the proposal demonstrates that hydronium has biocide properties, and the petitioner has requested that designation of the product from the EPA. To date, it has not been approved by the EPA. Because hydronium is a biocide it is expected to have an impact on the biodiversity of soil microorganisms with unknown effects.

Category 3: Alternatives/Compatibility

1. Are there alternatives to using the substance? Evaluate alternative practices as well as non-synthetic and synthetic available materials. [§6518(m)(6)]

OMRI lists over 2,000 pH adjustment aids/acidic compounds. Although many of them would probably not be applicable to the process of odor control of manure many organic acids could probably perform as hydronium is described.

2. In balancing the responses to the criteria above, is the substance compatible with a system of sustainable agriculture? [§6518(m)(7)]

   No. Based on OPFA criteria and improving soil health, the biocide activity of this product and the lack of EPA approval make it incompatible with a system of sustainable agriculture.

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Seconded by: Amy Bruch
Yes: 8 No: 0 Abstain: 0 Absent: Recuse: 0

National List Motion:
Motion to add hydronium to the National List at 205.601(j)(7) as an organic processing aid
Motion by: Rick Greenwood
Seconded by: Steve Ela
Yes: No: 8 Abstain: 0 Absent: 0 Recuse: 0

Approved by Rick Greenwood, Crop Subcommittee Chair, to transmit to NOP July 31, 2021.