

**National Organic Standards Board  
Crops Subcommittee  
Petitioned Material Proposal  
Potassium Hydroxide as a production aid in the production of  
liquid fish products**

**July 20, 2022**

**Summary of Petition:**

The petition states that the intent is to use potassium hydroxide as a processing aid to facilitate emulsion of the invasive carp species to help support extraction of soluble organic compounds from the fish by means of alkaline hydrolysis. The petitioner states that the amount of potassium hydroxide used should be limited to the amount necessary for emulsion of the fish and once the process is completed phosphoric acid will be used to stabilize the product.

**Summary of Review:**

Potassium hydroxide is already on the National List and is allowed as a processing aid for the extraction of aquatic plant extracts (per 7 CFR 205.601(j)(1)) and humic acids (per 7 CFR 205.601(j)(3)). It is also allowed for extraction and emulsion of algae and its use has been thoroughly reviewed when it was added to the National List.

**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.

Potassium hydroxide is a synthetic substance allowed for use in organic crop production (7 CFR 205.601).

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?

The petitioner is requesting that potassium hydroxide be added to 7 CFR 205.601(j)(4) as a synthetic substance allowed for use in organic crop production to be used as a production aid for the emulsion of invasive carp to produce a liquid fish 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)]

Potassium hydroxide is added to a reactor vessel along with fish and water, agitated with heat, and eventually stabilized (neutralized) with phosphoric acid. The potential for chemical interactions with other materials is negligible.

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?

For the petitioned use there will be no environmental contamination since the product will be neutralized before it is used in the environment.

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

The probability that there could be environmental contamination during the manufacture of the liquid fish product is minimal because the reaction takes place in an enclosed reaction vessel.

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

Potassium hydroxide is a caustic chemical and can cause skin damage, but in this use there is little chance for human exposure except during the manufacturing process. Potassium hydroxide has been reviewed by the FDA (21 CFR 184.1631).

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)]

Potassium hydroxide is used to raise the pH as part of the fish emulsion process but is neutralized when the liquid fish product is produced so no change in soil pH would be expected. Minor amounts of potassium would be added to the soil but in levels that would not be expected to change biological or chemical interactions in the soil agroecosystem.

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

At the rates this substance is applied, no adverse impacts on biodiversity are expected.

### **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)]

Potassium hydroxide is the preferred chemical for raising pH and is commonly used in agriculture, fertilizer, and food products. It is also listed by OMRI in numerous products. Sodium hydroxide could be an alternative but can be harmful to plants because of increased sodium levels. Lithium hydroxide could be an alternative but would be harmful to the environment due to the toxicity of lithium.

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

Yes. The end product, fish emulsion (liquid fish products), is widely used by organic farmers and has been recognized for years as being a beneficial fertilizer. This process will allow an invasive species of fish to be used in a beneficial way for organic agriculture. However, the

Subcommittee had remaining questions about the need to add this to the National List for just this specific fish (invasive carp species).

**Classification**

Potassium hydroxide is on the National List, and already classified as synthetic.

**National List Motion**

Motion to add potassium hydroxide to the National List as a processing aid at 205.601

Motion by: Rick Greenwood

Seconded by: Jerry D'Amore

Yes: 6 No: 1 Abstain: 0 Recuse: 0 Absent: 1