

**National Organic Standards Board
Crops Subcommittee (CS)
Petitioned Material Proposal
Chitosan – Reclassification
Fall 2026**

Summary of Petition [[May 2025 – Reclassification](#)]:

The Crops Subcommittee (CS) received two petitions in 2025 related to chitosan in crop production. The first was received in May 2025 and requests NOSB reclassify chitosan as “nonsynthetic,” rendering it allowed for use in organic crop production. The second was received in August 2025 and requests NOSB add chitosan to the National List as a synthetic substance allowed for use in organic crop production. This evaluation addresses the reclassification petition.

Reclassification Petition: The main argument of this reclassification petition is that since versions of chitosan exist in nature, and most chitosan is commercially produced via extraction from a natural source (i.e. crustacean shell waste), chitosan should be considered nonsynthetic. This approach does not apply organic classification guidance appropriately, and CS continues to consider chitosan produced using chemical deproteination and demineralization to be synthetic.

Subcommittee Review

The Subcommittee reviewed the manufacturing process of chitosan and agrees that the use of synthetic substances in its extraction and the chemical change in the substance that those synthetic substances cause render the final product of chitosan a synthetic substance.

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? [7 U.S.C. 6502(21)] If so, describe, using [NOP 5033-1](#) as a guide.

Chitosan is chemically extracted from a naturally occurring animal source – crustacean shells. However, at the end of the extraction process, the material has been transformed into a different substance via chemical change. The use of strong synthetic alkali materials like sodium or potassium hydroxide deproteinates shells during chitin isolation [2020 TR 595-598]. Then manufacturers use strong acids to demineralize the chitin [2020 TR 604-605]. Strong alkali materials are then again used for the deacetylation process to convert chitin into chitosan.

The TR also describes that chitosan production using biological means is possible, it remains a process limited solely to the laboratory and no commercial production using this method is known [2020 TR 670-674]

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?

N/A

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)]

N/A

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)]

N/A

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

N/A

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

N/A

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)]

N/A

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

N/A

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)]

N/A

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

N/A

Classification Motion

Motion to classify Chitosan (CAS 9012-76-4) as synthetic

Motion by: Nate Lewis

Seconded by: Franklin Quarcoo

Yes: 3 No: 0 Abstain: 0 Recuse: 0 Absent: 2