

**National Organic Standards Board
Livestock Subcommittee
Petitioned Material Proposal
Chlorine Materials in aquatic livestock production**

August 20, 2013

***Reviewed and revised January 21, 2014**

Summary of Proposed Action:

Chlorine Materials are petitioned for use in aquatic livestock production, to be added to 205.611 - *Synthetic substances allowed for use in organic aquatic animal production* as follows:

(x) Chlorine materials—residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.

- (i) Calcium hypochlorite.
- (ii) Chlorine dioxide
- (iii) Sodium hypochlorite

Synthetic Chlorine is proposed to be added to the National list at 205.611 for use in aquatic animal production. Section 205.611 of the National List will contain the list of synthetic substances allowed in organic aquatic animal production.

Chlorine materials are widely used for their disinfectant properties, and are currently approved for such uses in crop, livestock and processed organic product production. The annotations on the National List for livestock and handling limit the use of chlorine materials to disinfection and sanitation, and require that residual chlorine levels be consistent with Safe Drinking Water Act levels. The NOP has also clarified the use of chlorine in production and handling in a guidance document, [NOP 5026](#).

The Livestock Subcommittee has received a petition for the use of Chlorine Materials in aquatic livestock production. These materials are used in aquatic animal production for the disinfecting hard surfaces and culture water in nurseries, grow-out operations with tanks, harvest and slaughter equipment, and in processing facilities. Given that the materials' use in aquaculture applications is identical to existing uses in other production categories, the committee has not requested a new Technical Evaluation Report, but it is instead relying on recent TR's developed for Handling and Crops uses of this group of materials.

Evaluation Criteria

1. Impact on Humans and Environment
2. Essential & Availability Criteria
3. Compatibility & Consistency
4. Commercial Supply is Fragile or Potentially Unavailable as Organic (only for § 205.606)

Criteria Satisfied?

X Yes	☐ No	☐ N/A
X Yes	☐ No	☐ N/A
X Yes	☐ No	☐ N/A
☐ Yes	☐ No	X N/A

Substance Fails Criteria Category: N/A

Recommended Committee Action & Vote

Classification Motion: Chlorine Materials (Calcium hypochlorite – CAS 7778-54-3; chlorine dioxide – CAS 10049-04-4; and sodium hypochlorite – CAS 7681-52-9) are synthetic.

Motion by: Jean Richardson

Seconded by: Mac Stone

Yes: 5 No: 1 Absent: 0 Abstain: 1 Recuse: 0

Listing Motion: Motion to list Chlorine Materials (Calcium hypochlorite- CAS 7778-54-3; chlorine dioxide- CAS 10049-04; and sodium hypochlorite – CAS 7681-52-9) at § 205.611 with the following annotation : Chlorine materials - Disinfecting and sanitizing facilities and equipment. Residual levels in the water shall not exceed the maximum residual disinfecting limit under the Safe Drinking Water Act.

Motion by: Jean Richardson

Seconded by: Mac Stone

Yes: 5 No: 1 Absent: 0 Abstain: 1 Recuse: 0

Basis for annotation: ☒ To meet criteria above ☐ Other regulatory criteria ☐ Citation

Notes: This annotation is consistent with other listings of Chlorine on the NL, and ensures that any environmental impact is effectively mitigated.

Approved by Tracy Favre, Subcommittee Chair, to transmit to NOSB January 21, 2014

NOSB Evaluation Criteria for Substances Added To the National List: Livestock

Category 1. Adverse impacts on humans or the environment? Chlorine Materials

Question	Yes	No	N/A	Comments/Documentation (TAP; petition; regulatory agency; other)
1. Is there a probability of environmental contamination during use or misuse? [§6518(m)(3)]		X		2006 Crops TR lines 212-266. The TR identifies several areas of potential environmental impact, but notes that existing EPA regulations and the annotation restricting effluent to the levels of the Safe Drinking Water Act are sufficient to mitigate any environmental impact. The petitioner and a number of producers have confirmed that chlorine materials are not used in direct contact with the environment (e.g. ponds and net pens) and the restrictive annotation would prohibit such uses regardless.
2. Is there a probability of environmental contamination during, manufacture or disposal? [§6518(m)(3)]		X		See Question 1
3. Does the substance contain inerts classified by EPA as 'inerts of toxicological concern'? [§6517(c)(1)(B)(ii)]		X		No. [2006 Crops TR]

4. Is there potential for detrimental chemical interaction with other materials used in organic farming systems? [§6518(m)(1)]		X		The annotation restricts use to levels no greater than those determined by the Safe Drinking Water Act, so the potential for detrimental chemical interaction is similar to that posed by municipal tap water.
5. Is there a toxic or other adverse action of the material or its breakdown products? [§6518(m)(2)]		X		The annotation restricts use to levels no greater than those determined by the Safe Drinking Water Act, so the potential for detrimental chemical interaction is similar to that posed by municipal tap water. Any presence of the substance in the overall agroecosystem would be required by the annotation to meet the requirements of the Safe Drinking Water Act, ensuring presence below 4 ppm.
6. Is there persistence or concentration of the material or breakdown products in the environment? [§6518(m)(2)]		X		No. The substance degrades rapidly to naturally occurring compounds in the presence of air and sunlight [2006 Crops TR 417-432] This TR also confirms (in lines 384 –402) that these materials are not persistent in the environment in general, and that in water and soil, sodium and calcium hypochlorite separate into sodium, calcium and hypochlorite ions. Chlorine dioxide is also reactive and breaks down quickly. While the TER does not directly address its fate in aquatic environments, again, the annotation would limit the extent to which any chlorine material could be discharged into sea water or any other part of the environment.
7. Would the use of the substance be harmful to human health or the environment? [§6517 (c)(1)(A)(i); §6517 (c)(2)(A)(i); §6518(m)(4)]		X		See Q # 1
8. Are there adverse biological and chemical interactions in the agro-ecosystem, including biodiversity? [§6518(m)(5)]		X		Any presence of the substance in the overall agroecosystem would be required by the annotation to meet the requirements of the Safe Drinking Water Act, ensuring presence below 4 ppm.
9. Are there detrimental physiological effects on soil organisms, crops, or livestock? [§6518(m)(5)]		X		The substance is not used in direct contact with soil or terrestrial livestock. It is only used in contact with hard surfaces and equipment, or culture water. [2006 Crops TR 322-327, petition]

NOSB Evaluation Criteria for Substances Added To the National List: Livestock

Category 2. Is the Substance Essential for Organic Production? Chlorine Materials

Question	Yes	No	N/A	Comments/Documentation (TAP; petition; regulatory agency; other)
1. Is the substance agricultural? [§6502(1)]		X		
2. Is the substance formulated or manufactured by a chemical process? [§6502(21)]	X			Yes. 2006 TR Lines 149-171
3. Is the substance formulated or manufactured by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources? [§6502(21)]			X	This process does not involve the chemical transformation of a natural substance; the starting materials are synthetic. 2006 TR Lines 177-178
4. Is the substance created by naturally occurring biological processes? [§6502(21)]		X		2006 TR Lines 183-184
5. Is there a natural source of the substance? [§ 205.600(b)(1)]			X	2006 TR Lines 183-184
6. Is there an organic substitute? [§205.600(b)(1)]			X	2006 TR Lines 183-184
7. Is there a wholly natural substitute product? [§6517(c)(1)(A)(ii)]		X		Petition page 7-8 (notes the limitations on alternative materials) and 2011 Crops TER page 12.
8. Are there any alternative substances? [§6518(m)(6)]		X		
9. Are there other practices that would make the substance unnecessary? [§6518(m)(6)]		X		

NOSB Evaluation Criteria for Substances Added To the National List: Livestock

Category 3. Is the substance compatible with organic production practices? Chlorine Materials

Question	Yes	No	N/A	Comments/Documentation (TAP; petition; regulatory agency; other)
1. Is the substance consistent with organic farming and handling? [§6517(c)(1)(A)(iii); 6517(c)(2)(A)(ii)]	X			
2. Is the substance compatible with a system of sustainable agriculture? [§6518(m)(7)]	X			
3. If used in livestock feed or pet food, Is the nutritional quality of the food maintained with the substance? [§205.600(b)(3)]			X	
4. If used in livestock feed or pet food, Is the primary use as a preservative? [§205.600(b)(4)]			X	
5. If used in livestock feed or pet food, Is the primary use to recreate or improve flavors, colors, textures, or nutritive value lost in processing (except when required by law)? [§205.600(b)(4)]			X	
6. Is the substance used in production, and does it contain an active synthetic ingredient in the following categories: [§6517(c)(1)(B)(i);			X	
copper and sulfur compounds				
toxins derived from bacteria			X	
pheromones, soaps, horticultural oils, fish emulsions, treated seed, vitamins and minerals			X	
livestock parasiticides and medicines			X	
production aids including netting, tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleansers			X	