

**National Organic Standards Board
Handling Subcommittee
Petitioned Material Checklist
Ammonium Hydroxide**

February 19, 2013

Summary of Proposed Action:

Ammonium Hydroxide is a powerful alkali petitioned for use as a boiler additive because it neutralizes carbonic acid in condensate to prevent corrosion. Ammonium hydroxide is produced by the addition of water to Ammonia. Ammonia is produced on a large scale worldwide and one of its largest uses by production volume is as an ingredient in non-organic fertilizer.

Ammonium hydroxide is a severe irritant which must be handled properly because exposure by humans and other mammals during production or use presents a serious toxicological concern. It is toxic by all routes, inhalation, dermal and ingestion and the toxicity is well documented. It is an air and water pollutant and contributes as a greenhouse gas. It is toxic to fish and other aquatic species. Spillage could cause considerable environmental damage.

Ammonium hydroxide is not essential to organic production. There are other boiler additives on the National List. There are also a number of alternative practices which can be used instead of boiler additives. The addition of ammonium hydroxide is not consistent with organic agriculture.

Evaluation Criteria (see attached checklist for criteria in each category)

	Criteria Satisfied?		
1. Impact on Humans and Environment	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
2. Essential & Availability Criteria	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
3. Compatibility & Consistency	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
4. Commercial Supply is Fragile or Potentially Unavailable as Organic (only for §205.606)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A

Substance Fails Criteria Category: [3] Comments:

Ammonium hydroxide has the potential to cause significant toxic damage to humans, mammals, aquatic systems and greenhouse gasses and is not essential or compatible with organic agriculture and handling.

Subcommittee Action & Vote, including classification proposal (state actual motion):

Classification Motion: Move to classify Ammonium hydroxide (CAS # 1336-21-6) as petitioned is synthetic

Motion by: Jean Richardson

Seconded by: Tracy Favre

Yes: 6 No: 0 Absent: 2 Abstain: 0 Recuse: 0

Listing Motion: Move to list Ammonium hydroxide (CAS # 1336-21-6) to the National List Section 205.605b]

Motion by: Jean Richardson

Seconded by: Colehour Bondera

Yes: 0 No: 6 Absent: 2 Abstain: 0 Recuse: 0

Proposed Annotation (if any): none

Approved by John Foster, Subcommittee Chair, to transmit to NOSB February 19, 2013

NOSB Evaluation Criteria for Substances Added To the National List Handling

Category 1. Adverse impacts on humans or the environment?

Ammonium hydroxide

Question	Yes	No	N/A	Comments/Documentation. (TAP; petition; regulatory agency; other)
1. Are there adverse effects on the environment, or is there a probability of environmental contamination during use or misuse of the substance? [§205.600(b)(2), [§6518(m)(3)]	X			Toxic to environment if spilled or volatized to atmosphere (TR (2001) and petition)
2. Are there adverse effects on the environment or is there a probability of environmental contamination during manufacture or disposal of the substance? [§6518(m)(3)]	X			Worker injury through breathing, ingestion or dermal contact and terrestrial damage with spills during manufacture. (Petition and TR).
3. Are there any adverse impacts on biodiversity? (§205.200)	X			Toxic damage will occur through spills in terrestrial or aquatic systems, and ammonia contributes to greenhouse gases (Petition pages 8-10) Fish are particularly at risk for toxic effects.
4. Does the substance contain inerts classified by EPA as 'inerts of toxicological concern'? [§6517(c)(1)(B)(ii)]		X		
5. Is there undesirable persistence or concentration of the material or breakdown products in the environment? [§6518(m)(2)]	X			When released into air the gas contributes to Greenhouse gases.
6. Are there any harmful effects on human health from the main substance or the ancillary substances that may be added to it? [§6517(c)(1)(A)(i); 6517(c)(2)(A)(i); §6518(m)(4), 205.600(b)(3)]	X			Yes toxic if inhaled, ingested or dermal contact
7. Is the substance, and any ancillary substances, GRAS when used according to FDA's good manufacturing practices? [§205.600(b)(5)]	X			
8. Does the substance contain residues of heavy metals or other contaminants in excess of FDA tolerances? [§205.600(b)(5)]		X		

NOSB Evaluation Criteria for Substances Added To the National List Handling

Category 2. Is the Substance Essential for Organic Production? Ammonium hydroxide

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			Ammonium hydroxide is manufactured from natural gas which is used to convert atmospheric nitrogen to ammonia and then water is added to produce the hydroxide form.
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		
4. Is the substance created by naturally occurring biological processes? [§6502(21)]		X		
5. Is there a natural source of the substance? [§ 205.600(b)(1)]		X		
6. Is there an organic substitute? [§205.600(b)(1)]		X		
7. Is the substance essential for handling of organically produced agricultural products? [§205.600(b)(6)]		X		
8. Is there a wholly natural substitute product? [§6517(c)(1)(A)(ii)]		X		
9. Are there any alternative substances? [§6518(m)(6)]	X			There are non-organic alternatives on the NL
10. Is there another practice (in farming or handling) that would make the substance unnecessary? [§6518(m)(6)]				There are a number of alternative practices which can be used (Petition page11) These include pre-treating water, replacing steam pipelines with stainless steel etc.
11. Have the ancillary substances associated with the primary substance been reviewed? Describe, along with any proposed limitations.		X		

NOSB Evaluation Criteria for Substances Added To the National List Handling

Category 3. Is the substance compatible with organic handling practices? Ammonium hydroxide

Question	Yes	No	N/A	Comments/Documentation. (TAP; petition; regulatory agency; other)
1. Is the substance consistent with organic handling? [§6517(c)(1)(A)(iii); 6517(c)(2)(A)(ii)]		X		
2. Is the manner of the substance's use, manufacture, and disposal compatible with organic handling? [§205.600(b)(2)]		X		
3. Is the substance compatible with a system of sustainable agriculture? [§6518(m)(7)]		X		
4. Are the ancillary substances reviewed compatible with organic handling?			x	
5. Is the nutritional quality of the food maintained with the substance? [§205.600(b)(3)]		X		
6. Is the primary use as a preservative? [§205.600(b)(4)]		X		
7. Is the primary use to recreate or improve flavors, colors, textures, or nutritive values lost in processing (except when required by law)? [§205.600(b)(4)]		X		

**NOSB Evaluation Criteria for Substances Added To the National List
Handling**

Category 4. Is the commercial supply of an organic agricultural substance fragile or potentially unavailable? [§6610, 6518, 6519, §205.2, § 205.105(d), §205.600(c)] **Ammonium Hydroxide**

Question	Yes	No	N/A	Comments/Documentation. (TAP; petition; regulatory agency; other)
1. Is the comparative description as to why the non-organic form of the material /substance is necessary for use in organic handling provided?	X			The Petition describes in detail the reasons for petitioned use of this boiler additive
2. Does the current and historical industry information, research, or evidence provided explain how or why the material /substance cannot be obtained organically in the appropriate form to fulfill an essential function in a system of organic handling?	X			
3. Does the current and historical industry information, research, or evidence provided explain how or why the material /substance cannot be obtained organically in the appropriate quality to fulfill an essential function in a system of organic handling?			X	
4. Does the current and historical industry information, research, or evidence provided explain how or why the material /substance cannot be obtained organically in the appropriate quantity to fulfill an essential function in a system of organic handling?			X	
5. Does the industry information about unavailability include (but is not limited to) the following:			X	
a. Regions of production (including factors such as climate and number of regions);			X	
b. Number of suppliers and amount produced;			X	
c. Current and historical supplies related to weather events such as hurricanes, floods, and droughts that may temporarily halt production or destroy crops or supplies;			X	
d. Trade-related issues such as evidence of hoarding, war, trade barriers, or civil unrest that may temporarily restrict supplies; or			X	
e. Other issues which may present a challenge to a consistent supply?			X	