

NOSB COMMITTEE RECOMMENDATION

Form NOPLIST1. Committee Transmittal to NOSB

For NOSB Meeting: Fall, 2011

Substance: Ammonium Nonanoate

Committee: Crops Livestock Handling **Petition is for:** Ammonium nonanoate, as a synthetic substance for use in organic crop production as an herbicide on the National List § 205.601

A. Evaluation Criteria (Applicability noted for each category; Documentation attached) **Criteria Satisfied? (see B below)**

- | | |
|--|--|
| 1. Impact on Humans and Environment | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> |
| 2. Essential & Availability Criteria | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> |
| 3. Compatibility & Consistency | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> |
| 4. Commercial Supply is Fragile or Potentially Unavailable as Organic (only for 606) | Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> |

Substance Fails Criteria Category: [2 & 3] **Comments:** There are numerous weed control alternatives and it was the general consensus of the committee that although this material is fairly benign in the environment (the exception being its toxicity to aquatic invertebrates), a broad spectrum synthetic herbicide is not compatible or consistent with organic agriculture

B. Proposed Annotation (if any): _____

Basis for annotation: To meet criteria above: _____ Other regulatory criteria: _____ Citation: _____

D. Recommended Committee Action & Vote, including classification recommendation (State Actual Motion):

Classification Motion: Ammonium nonanoate The Crops Committee voted in Nov. 2008 that ammonium nonanoate is synthetic.

Classification of the material: Synthetic Non- synthetic _____ Absent: _____ Abstain _____

Motion by: _____ Seconded: _____ Yes: _____ No: _____ Absent: _____ Abstain: _____

Recommended Committee Action & Vote The motion is to add ammonium nonanoate to the National List 205.601 as a synthetic substance for use as an herbicide in organic food production.

Motion by: _____ Seconded: _____ Yes: 1 No: 4 Absent: 0 Abstain: 0

Crops	<input checked="" type="checkbox"/>	Agricultural		Allowed ¹	
Livestock		Non-Synthetic		Prohibited ²	
Handling		Synthetic	<input checked="" type="checkbox"/>	Rejected ³	<input checked="" type="checkbox"/>
No restriction		Commercially Un-Available as Organic ¹		Deferred ⁴	

1) Substance voted to be added as “allowed” on National List to § 205. _____ with Annotation (if any) _____

2) Substance to be added as “prohibited” on National List to § 205. _____ with Annotation (if any) _____

Describe why a prohibited substance: _____

3) Substance was rejected by vote for amending National List to § 205. X why material was rejected: Ammonium nonanoate was rejected because of questions of necessity as there are several alternatives pointed out in the TR, because of issues of consistency and compatibility and because of concerns about toxicity to aquatic invertebrates.

4) Substance was recommended to be deferred because _____

If follow-up needed, who will follow up _____

E. Approved by Committee Chair to transmit to NOSB:

John Foster
Committee Chair

Oct. 07, 2011
Date

EVALUATION CRITERIA FOR SUBSTANCES ADDED TO THE NATIONAL LIST

Category 1. Adverse impacts on humans or the environment? Substance Ammonium nonanoate

Question	Yes	No	N/A ¹	Documentation (TAP; petition; regulatory agency; other)
1. Are there adverse effects on environment from manufacture, use, or disposal? [§205.600 b.2]	X			2011 TR pg. 6 “highly toxic to aquatic invertebrates”
2. Is there environmental contamination during manufacture, use, misuse, or disposal? [§6518 m.3]				2011 TR pg. 6 Lines 300-320- product is rapidly biodegraded in the environment and it’s byproducts have value in food, pharmacy, and cosmetic applications. (paraphrased), although the TR states that “Specific information regarding the potential for environmental contamination associated with the manufacture of ammonium nonanoate was not found.(lines 300-301)
3. Is the substance harmful to the environment and biodiversity? [§6517c(1)(A)(i);6517(c)(2)(A)i]	X			2011 TR pg. 3, lines 130-134 It is a “nonselective, broad-spectrum, contact” (TR line 117) synthetic herbicide and also is an EPA registered insecticide and fungicide. “Pesticide products containing ammonium nonanoate as the active ingredient were first registered with EPA in 2006 and several have been registered since then (PAN, 2010). All of these products are listed as herbicides. Pesticide products containing the active ingredient ammonium salts of fatty acids were first registered with EPA in 1982 and many have been registered since that time (PAN, 2010). The use types listed for these products include herbicides, deer repellents, fungicides, and insecticides
4. Does the substance contain List 1, 2, or 3 inerts? [§6517 c (1) (B)(ii); 205.601(m)2]		X		2011 TR pg. 4 Lines 190-196 “B). Ammonium nonanoate is not listed by EPA as an inert ingredient of toxicological concern. Soap is included on the list of EPA inert ingredients of minimal concern for food and nonfood uses, but it is defined as “the water soluble sodium or potassium salts of fatty acids produced by either the saponification of fats and oils, or the neutralization of fatty acid” (EPA, 2010). Ammonium nonanoate does not meet this definition because it is an ammonium salt of a fatty acid and not a sodium or potassium salt. However, ammonium nonanoate when used as an active or inert ingredient in pesticide products is exempt from the requirement of a tolerance per 40 CFR 180.1284 and 180.910.” and lines 89-91 “According to 40 CFR 180.910, ammonium salts of fatty acids, including ammonium nonanoate, may be used as inert ingredients (surfactants) in pesticides applied to pre- and post-harvest crops. No further information was found on this usage.”
5. Is there potential for detrimental chemical interaction with other materials used? [§6518 m.1]	X			2011 TR pg. 7 lines 326-337 “No information could be found on known chemical interactions between ammonium nonanoate and other substances allowed for use in organic production or handling. The RED for soap salts states that ammonium soaps of higher fatty acids are not compatible with soluble metallic salts such as zinc, manganese, and iron sulfates (EPA, 1992), but does not provide any further details regarding the likelihood for these interactions. This is a potential issue in organic crop production because soluble metallic salts are permitted for use as soil micronutrients following documentation of a

			<p>soil deficiency. Specifically, sulfates, carbonates, oxides, or silicates of zinc, copper, manganese, iron, molybdenum, selenium, and cobalt are permitted by 7 CFR 205.601(j)(6)(ii). The potential environmental or health effects resulting from the mixture of these incompatible materials in agricultural soil were not described.</p> <p>The MSDS for Racer® Concentrate (40% ammonium nonanoate) states that the product is incompatible with acids, strong bases, and any material incompatible with water (Smiley and Beste, 2009).”</p>
6. Are there adverse biological and chemical interactions in agro- ecosystem? [§6518 m.5]		X	2011 TR pg. 7-8 lines 343-379
7. Are there detrimental physiological effects on soil organisms, crops, or livestock? [§6518 m.5]			2011 TR pg. 7 lines 343-379, specifically lines 370-372 “No information could be found on the potential effects of ammonium nonanoate on soil organisms, soil temperature, water availability, pH levels, nutrient availability, salt concentration, solubility, or any other soil physicochemical and biological properties.”
8. Is there a toxic or other adverse action of the material or its breakdown products? [§6518 m.2]	X	X	<p>2011 TR pg. 6 lines 293-295 no: “As stated in the response to Evaluation Question #4, ammonium nonanoate is expected to rapidly degrade following contact with the soil. The breakdown products are compounds that naturally occur in the soil; therefore, no toxic effects are expected.”</p> <p>Yes: TR lines 276-279: “Soap salts of fatty acids are considered to be slightly toxic to birds on an acute basis, practically nontoxic to birds on a dietary basis, slightly toxic to warm and cold water fish, and highly toxic to aquatic invertebrates (EPA, 1992). Toxicity data for nontarget insects are not available for any soap salt (EPA, 2008). Some soap salts (e.g., potassium salts of fatty acids) are registered for use as insecticides (NPIRS, 2011).”</p> <p>Complete TR answer to this question lines 246-295</p>
9. Is there undesirable persistence or concentration of the material or breakdown products in environment? [§6518 m.2]	X		<p>2011 TR pg. 5 lines 227-240 “Once released into the soil, ammonium salts of fatty acids, such as ammonium nonanoate, are expected to rapidly degrade primarily by microbial action (EPA, 1992). This is further supported by a draft environmental risk assessment of fatty acid salts prepared by HERA, which concludes that fatty acid salts with carbon chain lengths up to C18 can be considered readily biodegradable via aerobic metabolism (HERA, 2003). According to the RED for soap salts prepared by EPA, the half-life of the fatty acid components of ammonium soaps was demonstrated to be less than one day in soil (EPA, 1992).</p> <p>Regarding the potential degradation products of ammonium nonanoate in the environment, the RED states that microbial metabolism of fatty acids will result in the eventual formation of carbon dioxide and an ester, or that the carbon content of fatty acids will be converted into naturally-occurring organic substances normally produced by soil microorganisms (EPA, 1992). The BRAD for ammonium nonanoate concluded that this compound will not persist in the environment when used as an herbicide as directed (EPA, 2008). Environmental fate and groundwater data were waived for ammonium nonanoate due to EPA’s estimate of</p>

				minimal risk (EPA, 2008). No further information could be found on the persistence or concentration of ammonium nonanoate and/or its byproducts in the environment.”
10. Is there any harmful effect on human health? [§6517 c (1)(A) (i) ; 6517 c(2)(A)I; §6518 m.4]		X		2011 TR pg. 8 lines 405-407 “EPA’s RED for soap salts concluded that products containing ammonium salts of fatty acids are not likely to cause unreasonable adverse effects on human health (EPA, 1992). The toxicity of ammonium salts of fatty acids, including ammonium nonanoate, is generally low (E
11. Is there an adverse effect on human health as defined by applicable Federal regulations? [205.600 b.3]			X	
12. Is the substance GRAS when used according to FDA’s good manufacturing practices? [§205.600 b.5]			X	
13. Does the substance contain residues of heavy metals or other contaminants in excess of FDA tolerances? [§205.600 b.5]			X	

¹If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

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

Question	Yes	No	N/A ¹	Documentation (TAP; petition; regulatory agency; other)
1. Is the substance formulated or manufactured by a chemical process? [6502 (21)]	X			2011 TR pg. 4-5 lines 203-215
2. 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			2011 TR pg. 4-5 lines 203-215
3. Is the substance created by naturally occurring biological processes? [6502 (21)]		X		2011 TR pg. 4-5 lines 203-215
4. Is there a natural source of the substance? [§205.600 b.1]			X	
5. Is there an organic substitute? [§205.600 b.1]			X	
6. Is the substance essential for handling of organically produced agricultural products? [§205.600 b.6]			X	
7. Is there a wholly natural substitute product? [§6517 c (1)(A)(ii)]			X	
8. Is the substance used in handling, not synthetic, but not organically produced? [§6517 c (1)(B)(iii)]			X	
9. Are there any alternative substances? [§6518 m.6]	X			2011 TR pgs. 9-12 lines 436-602
10. Is there another practice that would make the substance unnecessary? [§6518 m.6]	X			2011 TR pgs. 12-13 lines 607-711

¹ If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

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

Substance Ammonium nonanoate

Question	Yes	No	N/A ¹	Documentation (TAP; petition; regulatory agency; other)
1. Is the substance compatible with organic handling? [§205.600 b.2]			X	
2. Is the substance consistent with organic farming and handling? [§6517 c (1)(A)(iii); 6517 c (2)(A)(ii)]		X		Ammonium Nonanoate is a non-selective, broad-spectrum herbicide as well as being registered as an insecticide.
3. Is the substance compatible with a system of sustainable agriculture? [§6518 m.7]	X	X		The nature of its non-selective and broad spectrum action on green plants as well as it's insecticidal properties are not compatible with maintaining biodiversity which is integral to sustainability. It is relatively non-toxic and has low environmental impact
4. Is the nutritional quality of the food maintained with the substance? [§205.600 b.3]			X	
5. Is the primary use as a preservative? [§205.600 b.4]			X	
6. Is the primary use to recreate or improve flavors, colors, textures, or nutritive values lost in processing (except when required by law, e.g., vitamin D in milk)? [205.600 b.4]			X	
7. Is the substance used in production, and does it contain an active synthetic ingredient in the following categories:		X		
a. copper and sulfur compounds;		X		
b. toxins derived from bacteria;		X		
c. pheromones, soaps, horticultural oils, fish emulsions, treated seed, vitamins and minerals?	X			The ammonium nonanoate is a soap 2011 TR lines 18, 95-96,139-141, 157-159, 164-165, 171-172, 188
d. livestock parasiticides and medicines?		X		
e. production aids including netting, tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleaners?		X		

¹ If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

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

Substance - Ammonium nonanoate

Question	Yes	No	N/A	Comments on Information Provided (sufficient, plausible, reasonable, thorough, complete, unknown)
1. <u>Is the comparative description provided</u> as to why the non-organic form of the material /substance is necessary for use in organic handling?			X	
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 provided on material / substance non-availability as organic, include (but 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. Are there other issues which may present a challenge to a consistent supply?			X	