

United States Department of Agriculture
Agricultural Marketing Service | National Organic Program
Document Cover Sheet

<https://www.ams.usda.gov/rules-regulations/organic/national-list/petitioned>

Document Type:

National List Petition or Petition Update

A petition is a request to amend the USDA National Organic Program's National List of Allowed and Prohibited Substances (National List).

Any person may submit a petition to have a substance evaluated by the National Organic Standards Board (7 CFR 205.607(a)).

Guidelines for submitting a petition are available in the NOP Handbook as NOP 3011, National List Petition Guidelines.

Petitions are posted for the public on the NOP website for Petitioned Substances.

Technical Report

A technical report is developed in response to a petition to amend the National List. Reports are also developed to assist in the review of substances that are already on the National List.

Technical reports are completed by third-party contractors and are available to the public on the NOP website for Petitioned Substances.

Contractor names and dates completed are available in the report.

NATIONAL ORGANIC STANDARDS BOARD

Addendum 2

to

A Petition to add chelating agents to the National List.

Ammonium citrate and Ammonium glycinate.

Date of this Addendum to the second Petition:
20 September 2018.

Petitioner:
Robert Phillip. Sydney, Australia.

Manufacturer:
Alpha Chemicals Pty Ltd. Sydney. Australia.

Background:-

A Petition dated September 2015 [“the first petition”], accepted by NOP as complete in March 2016, sought acceptance of the formulating agents ammonium citrate and ammonium glycinate in the manufacture of “chelates” for organic-certified crop production; the first Petition was denied in September 2016.

The Petitioner has in June 2017 lodged appeal documents [“the second Petition”] accepted by NOP as complete in November 2017; NOP immediately forwarded these documents to NOSB who commissioned a third party Technical Report [TR] in November 2017 as follows:-

- what is a chelating agent?
- what is a chelate?
- what is a metal salt?

The first issue of the TR was reviewed by the Crops Subcommittee in August 2018; they subsequently “...forwarded comments to the contractor for consideration in the final report”.
[NOP email dated 14 September 2018].

Coincidentally, as at the date of this Addendum, the NOSB has recommended acceptance to the National List of “sodium citrate”; this is a synthetic substance; it is used for the manufacture, in a factory, of a blood coagulant substance useful as a soil amendment. The chemical action of sodium citrate on blood is as a ‘sequestration agent’ or ‘chelating agent’; this obviously is arranged to be in a factory; sodium citrate forms a chelate with the iron in iron-bearing haemoglobin in blood.

This is a useful coincidence because the sequestration reaction in a factory of sodium citrate with iron in blood is exactly analogous to the sequestration reaction in a factory of ammonium citrate with iron in iron sulphate. However, the petitions under consideration go further :-

- they request approval for use of exactly known species and concentrations of acid and alkali for the manufacture of citrate- and glycinate-salts (‘chelating-agent-salts’ and ‘nature-identical acids and alkalis’);
- they cover sequestration not only of iron but also of copper and manganese and zinc (each to be used, if necessary, as supplemental sources of deficient micronutrients in high soil pH conditions).
- they request amendments to the National List and NOP’s Document 5034-1 to correct errors and omissions.

New information:-

The following topics demonstrate that the involvement of **both** the NOP and the NOSB is required in the context of chelates and chelating agents:-

1. Adding chelating agents to soil as 'soil amendments'.

Chelating agents are not soil amendments.

The National List at 205.601.j.4 is in error.

Chelating agents contain no micronutrients and cannot solve any micronutrient deficiency in any soil at any pH.

The NOSB should point out to the NOP that the referenced clause needs to be amended.

2 (a)

Believing that chelating agents are acids.

Chelating agents are classified as acids in NOP's Document 5034-1.

Chelating agents are not acids - they are **salts of acids.**

The NOSB should point out to the NOP that the relevant documents need to be amended.

2 (b)

Believing that humic acid and fulvic acid are chelating agents and are added to soil.

The NOSB believes that humic acid and fulvic acid are currently "in use" by organic growers and are added to soil as chelating agents; they may be currently in use but their role is that of a plant booster and not as a chelating agent. The plant booster effect comes not from micronutrients, because they contain none, but from contained carbon and potassium.

3. Omitting an alkali from the production of a chelating agent.

An alkali is essential in the formation of a chelating-agent-salt.

Alkalis cannot be dismissed by NOSB as '*outside its purview*'.

The four alkalis relevant to production of chelating agents in a commercial factory are ammonium hydroxide, sodium hydroxide, potassium hydroxide and calcium hydroxide. The scale of use of these synthetic substance is of the same order as the use of the liquid chelates themselves namely of the order of 2 - 4 litres per hectare.

4. Omitting the pH of soil.

The National List and NOP's document 5034-1 do not refer to soil pH and yet high soil pH creates problems of 'availability' to plants of micronutrients.

Chelated micronutrients are the only remedy in high pH soils deficient in micronutrients.

The saving feature is that the NOP creates allowance for synthetic substances such as micronutrient chelates in cases of '*technical necessity*'.

Field trials on wheat in Australia gave clear proof that **unchelated** micronutrients were useless in zinc deficient, high pH soil even when the dose rate for zinc sulphate per hectare was increased by a factor of 12 (twelve) between minimum and maximum rates across a total of 6 trials.

5. Omitting "chelate" from the National List and from Document 5034-1.

Neither the National List or NOP's document 5034-1 recognises "chelate".

Dr. Lisa Brines, the former National List Manager for the NOP, was aware of this.

The petitioner understood that the NOP has already planned a timetable to correct the deficiency; the NOSB's acceptance of the TR will strengthen the case for amending NOP's documents.

6. Overarching requirements of OFPA 'used in production'.

Chelating agents are not **directly** 'used in production'.

The role of chelating agents is that of a formulating agent to produce, in a factory, a technically successful substance (a micronutrient chelate) used for supplementary feeding of plants, *if necessary in any specific situation*.

It may be the case that OFPA does not currently have a category suited to 'chelating agent' or to 'micronutrient chelate'. Acceptance of sodium citrate by the NOSB in an analogous role, indicates that current OFPA recognitions are not considered to be a barrier. It is requested that an explicit ruling be made to bring this potential issue to a sound conclusion.

7. Safety issues with ammonium hydroxide in the manufacture of chelating-agent-salts.

The NOSB recorded safety concerns in September 2016 regarding use of ammonium hydroxide, which is a raw material in the 2 Petitions.

Yes, safety must be included in evaluations.

Secondly, the NOSB and the NOP must already be aware that chemical manufacturing firms are experienced in their field; and that they already have training courses for staff; and that they have effective procedures in safe handling of chemical substances.

Thirdly, the Petitioner himself has trained high school students in Kathmandu, Nepal in the safe, spill-free handling of ammonium hydroxide; this involves using a siphon system with 2 valves in the suction line; this was in the context of training students to produce micronutrient chelates for the orphanage farm instead of buying them.

The point is that a properly informed view of ammonium hydroxide would not lead to its exclusion as an alkali in the manufacture of chelating-agent-salts.

8. Nomenclature.

It would be an improvement if the technically correct term '**ligand**' would be sanctioned for use in all of NOP's documents to replace 'chelating agent' - as well as all the other current usages 'sequestration agent', 'chelant', 'chelator', 'coordinating agent', 'combining agent', 'complexing agent', etc.

9. Use of 'nature identical' substances in the specific circumstance of the Petition.

The Canadian organic-certifying authorities allow use of both natural and 'nature-identical' acids such as citric acid.

There would be benefit to reproducibility and accuracy in manufacture of chelating agents if the NOP were to sanction the use of 'nature-identical' acids and alkalis in the specifically defined and limited context of the 2 Petitions.

10. Consistency.

The unchelated metal salts allowed in 205.601. j . 6 . (ii) are synthetic.

It is not possible to produce a 'natural' chelate from any of the listed synthetic unchelated substances.

11. 'Knock-on' effects if the NOP has errors or omissions.

The NOP is the 'go to' authority.

-OMRI uses the NOP's regulatory documents.

-OMRI is, in turn, consulted by the certifying group “Australian Certified Organic’ [ACO] - and by others.

The knock-on effect can be traced backwards:-

At the end of the chain ACO has denied permission for the use of a synthetic chelate ...this is because ‘chelate’ is not mentioned by OMRI ...and , further up the chain, OMRI itself does not mention ‘chelate’... because, higher still up the chain, ‘chelate’ is not mentioned by the NOP.

There is yet another knock-on effect ; this occurs with observer groups such as “*Beyond Pesticides*” located in USA; they are mentioned here because they displayed a complete misunderstanding of chelating agents in the first Petition ie they are to be added to soil just as the NOP assumes is appropriate; they recommended to the NOSB in public comments in September 2016 (qv) that the first Petition, being for a chelating agent, should have been for **zinc glycinate**, which they would have added to soil; this substance is an ionic, zinc containing salt - but it has exactly the same deficiencies in high pH soil as all other ionic salts, ie they are useless.

The current situation is not good when it is realised that all downstream or satellite groups such as OMRI and ACO have followed and will always follow the NOP in its errors and omissions in any specialist field such as micronutrient chelates and chelating agents.

12. Observer bias.

The current NOP documents are an excellent example of the operation of the phenomenon termed ‘*observer bias*’.

This refers to a situation where the correct or better explanation of the facts is not available, or even considered as a possibility, because of limits to or restrictions in the availability of data.

For example, the propagation by the NOP of two beliefs, to mention only two, namely that chelating agents are added to soil and that chelating agents are acids, created an observer bias in the NOSB,and hence in OMRI ...and hence in ACO.

It is requested that, during NOSB’s review of the second Petition, the NOP coordinates with the NOSB on all of the above 12 topics; these topics should be included, as necessary, in the Technical Report on chelates and chelating agents, a Report which, the NOP mentioned in an email dated 14 September 2018, has been reviewed by the NOSB and comments forwarded to the contractor for consideration.

To end on a positive note:-

.... once proper documentary amendments in the context of micronutrient chelates and chelating agents are introduced by the NOP and the NOSB, the whole organic-certification/production world will benefit.