Meeting

Magnesium L-Threonate (Magtein®) Additional Information Discussion Paper

Committee Paper for Discussion - ACNFP/159/01.

Advisory Committee For Novel Foods and Processes.

Application for Authorisation as a Novel Food for Magnesium L-Threonate (Magtein®).

Additional Information from Applicant for review.

Application number RP956.

Issue

The Committee reviewed this application for the first time at the September 2022 meeting and then again at the November 2022 meeting. Members requested further information on which to base their assessment of the novel food. The Committee are invited to consider the response from the applicant and whether it addresses the requests for information satisfactorily or if further information is required.

Background

1. On the 7th April 2021, the FSA received the submission for magnesium L-threonate monohydrate (Magtein®) from AIDP. The novel food is made by the chemical reaction of ascorbic acid and calcium carbonate to form calcium L-threonate which is then converted by a further reaction to magnesium L-threonate monohydrate. The applicant proposes to use the novel food as magnesium source in food supplements only.

2. The Committee conducted a preliminary review of the application at the September 2022 and asked to perform a deeper assessment of the dossier as part of the November 2022 meeting.

3. The Committee requested additional information from the applicant on which to base their assessment. Information was requested on:

- Identity
- Production Process
- Composition

4. The FSA's request for further information and the applicant's response are included as Annexes A and B, respectively. The most recent version of the dossier and annexes can be found Annexes C and D respectively. All the annexes contain confidential information.

Applicant's response to request for further information

Identification

5. The Committee queried whether the magnesium L-threonate had been appropriately characterised given that the compositional analysis (Annex C, Table 5, p31 dossier) indicated that the magnesium content ranges from 7.6 – 7.84%, the L-threonate content ranges from 86.3 – 89.1%, and the moisture content ranges from 0.1 – 0.4%. Members requested further information to understand both the uncharacterised content and the impact of the changes in water content on the composition.

6. The applicant states that the 'missing' part of the assay, around 6% w/w, is related to the water from magnesium L-threonate monohydrate, $Mg(C4H7O5)2.H2O$, and the inclusion of this water content accounts for 100% of the novel food (Annex B – p2 Applicant's response to RFI).

7. The Committee requested further information on the size of particles in the novel food as the specification states that the no more the 60% passes through a US # 20 mesh (850 µm) and no less then 90% passes through a US # 200 mesh (75 µm). Based on this specified particle size distribution, Members queried whether a fraction of the final novel food could have nanoscale properties (0.1 µm).

8. The applicant has conducted an assessment of the magnesium L-threonate in line with EFSA guidance on technical requirements for regulated food and feed product applications to establish the presence of small particles including nanoparticles (Annex B – p2 Applicant’s response to RFI).

9. The solubility of one batch of magnesium L-threonate in water was assessed according to the OECD guideline 105: water solubility (Annex B – Annex 71). According to these results, the solubility of magnesium L-threonate in water is 47.9 g/L at 24 hours, 46.9 g/L at 48 hours and 47.3 g/L at 72 hours. The applicant noted that the results show magnesium L-threonate is a highly soluble substance (solubility ≥33.3 g/L in water), and there is no risk associated with the presence of nanoparticles.

Production Process

10. The Committee requested a detailed description of the food safety management plan (HACCP plan) which addressed the potential allergenic, biological, chemical and/or physical hazards in the manufacturing process as insufficient information had been provided for review.

11. The applicant has responded to this request by providing further discussion on potential impurities in the manufacturing process (Annex B – p3-4 Applicant’s response to RFI). Further documentation has also been supplied: updated hazard risk assessment; GMP Qidong Dongyue; TSE BSE Statement; impurities tracking diagram; raw materials TSE BSE certifications (Annex B – Annex 63, 72 – 75).

12. The Committee requested that a copy of the specification for oxalic acid be provided for review.

13. The applicant has stated that no specification sheet for oxalic acid was available. A certificate of analysis for one batch of oxalic acid has been supplied (Annex B – p5 Applicant’s response to RFI; Annex 76).

Composition

14. The Committee queried whether the magnesium carbonate used to manufacture the novel food could be a source of impurities as the raw material assay is reported as 40 – 44%. Members requested further data to assess the presence of potential contaminants.

15. The applicant has responded by stating that the magnesium carbonate used in the manufacturing process is magnesium carbonate heavy. This corresponds with hydrated basic magnesium carbonate as described in the European Pharmacopoeia (Annex B – Annex 67) where the acceptance criteria for the assay is 40 – 45%, calculated as magnesium oxide (Annex B – p5 Applicant's response to RFI). Further, the applicant states that this misunderstanding was due inaccurate translations of the specification sheets which have also been re-submitted (Annex B – Annex 68 – 69).

16. The applicant has also provided an updated version of the manufacturing process (Annex B – p5-6 Applicant's response to RFI).

17. The Committee requested an assessment to determine whether residues of oxalic acid are present in the novel food given the potential toxicity associated with exposure to this substance.

18. The applicant has provided a certificate of analysis for one batch of magnesium L-threonate which indicates that the content of oxalic acid is 0.155% w/w (Annex B – Annex 66). The applicant states that based on this data, consuming magnesium L-threonate at the anticipated intake level of 3 g/day would lead to a daily dose of 4.65 mg of oxalic acid (Annex B – p6 Applicant's response to RFI). The applicant remarks that the daily dose of oxalic acid consumed in the daily diet is typically 44 – 352 mg/day (Holmes, 2000).

Committee Action Required

- The Committee is asked whether the response from the applicant is sufficient to clarify the concerns discussed at the last meeting.
- If not, the Committee is asked to indicate what further data is required and the feedback that should be given to the applicant.

ACNFP Secretariat April 2023

Annexes

Annex A – RFI Letter

Annex B – Applicant's Response to RFI Letter

Annex C – Original Dossier