GOED Technical Committee - Minutes

Date: July 24, 2025

PRESENT (please let us know if you were present, but not listed below)

Jenna Ritter (*chair* – Nature's Way of Canada)
Dimitri Sclabos (Tharos)
Tony Bimbo (International Fisheries)
Simone Staiger (Eurofins)
Mina Fakhary (Pharmavite)
Guy Ben-Zvi (Omega-3 Galil)
Frank Möllering (NutriSwiss)
Ali Zaferanloo (Aker Biomarine)
Heike Meyer (Imperial Oel)
Daniel Bohlen (KD Pharma)
Juergen Gierke (BASF)
Keith Persons (Eurofins)
Adin Smith (Nordic Naturals)
Fernando Miranda del Solar (Austral)
Lilian Thiaux (Olvea)
Bryan Talus (Scoular)
Ilco Boogers (Corbion)
Sonia Casanova (Copeinca)
Meagan Eggebeen (Amway)
Alphard Orot (Aker Biomarine)
Roberto Valenzuela (Innocon)
Tanya McGillivray (Mara Renewables)
Anthony Bible (Wiley Companies)
Jennifer May (dsm-firmenich)
Katrina Bartley (Nutrasource)
Agata Szygula (TASA)
Yutong Wang (Nutrasource/SGS)
Jiyoo Baek (Nutrasource/SGS)
Helen Albans (Croda)
Marco Figari (TASA)
Bas Arntz (Novosana)
Hyun-Ah Kim (Nutrasource/SGS)
Gaige Pyatt (Nutrasource/SGS)

GOED Staff:
Gerard Bannenberg (GOED)
Harry Rice (GOED)
Gaby Cortez (GOED)
Alexandra Gautier (GOED)

Guests:

Absented:
Ainara García García (KD Pharma)
Linda Saga (Eqology)
Marita Buarø (GC Rieber/Vivomega)
Lars Dalheim (NOFIMA)
Marie-Sophie Tangen (Orivo)
Roger Johan Pettersen (Holtermann)
Christine Bousses (Fermentalg)
Ellen Schutt (GOED)
Eline Verbaanderd (Friesland Campina)
Jonathan Cortes Linero (Naturmega)
Crispulo Gallegos-Montes (Fresenius Kabi)

Invitees for this call:
Paolo Bonini (oloBion)
Sandra Yeste (oloBion)

Approval of Agenda and Minutes (Jenna Ritter - committee chair)

- Any comments on the minutes of the last meeting?
  - *No comments.* The minutes of the last meeting were approved.
- The agenda and meeting documentation were sent out on July 22nd, 2025. Any additions or changes?
  - The agenda was approved.

New Technical Committee Members (Jenna Ritter)

- **New members of the Technical Committee**
  - **Crispulo Gallegos-Montes (Fresenius Kabi)** – *absented*
  - **Ali Zaferanloo (Aker Biomarine) –** I am excited to join this committee. My background is in chemistry. I am a stability specialist at the Houston facility, where I focus on the stability program for krill oil and algae oil.
  - **Alphard Orot (Aker Biomarine) –** I am a chemist by background. Most of my experience is in pharma, small molecules and radiopharmaceuticals. I am new to the area and look forward to seeing how we can help the organization, and the krill oil industry.
  - **Cheng Shang (Seawit Life Science) –** *not present*
  - **Ilco Boogers (Corbion) –** Hello. I have more than 30 years of experience in analytical chemistry. My first 20 years at DSM. And more than 10 years ago I came in contact with the topic of PUFAs, in particular arachidonic acid, for infant formula. Since 5 years, I am heading the analytical department at Corbion. That involves about 30 persons worldwide. We are working on different topics, including an algae oil, which is of course part of Corbion. I am happy to join GOED.
  - **Alexandra Gautier (GOED) –** I am excited to be here, the GOED team. I am the new member services project coordinator, supporting Ashley Becnel and her member services tasks.

- **Members who have left the committee:**
  - **Jenna –** No members have left the committee. It is great to see the committee is growing in size.

Monograph/Pharmacopeia Updates (Gerard Bannenberg - GOED)

- **Summary report ISO 12966-4 method evaluation published (Technical Committee Working Group/Jenna & Gerard)**

- **Jenna –** We have completed the review of the ISO 12966-4 method. This is now available online on the GOED website (link). I wanted to thank the working committee members who participated in this. There were eight committee members who helped us to pull this together. You have all seen this document before, but it is now officially live.

Legislative Updates (Gerard Bannenberg)

- **GOED letter submitted to EC on MOH proposed regulation**

  - **Gerard –** We recently submitted a letter (link) on behalf of GOED to the European Commission (EC) regarding the latest proposal to regulate the maximum levels of mineral oil hydrocarbons (MOH) in food, in particular with respect to EPA/DHA omega-3 oils. We have worked on the content of this letter for the past few months, and I would like to thank everybody who has contributed with comments and occurrence data. In our recent News Alert (link) the main points of the letter were highlighted:

    - Reinstating the name of the applicable category 5.5.2.5 as "Fish oils and oils from other marine organisms, and algae" rather than "Oils produced from fishery products and algae."
    - Setting a customized higher Maximum Level (ML) for crude unrefined EPA/DHA omega-3 oils because these oils will be refined prior to consumption. It appears the EC will implement the same ML for all edible oils independently of their level of refining. Since refining of fish oils is necessary to partially mitigate the levels of apparent MOSH and MOAH, we have suggested a slightly higher ML of 15 mg/kg for crude unrefined oils destined to be refined.
    - Creating a category for ingredient oil blends of category 5.5.2.5 and vegetable oils. For blends of oils of different origin that are handled as ingredients, there is no current classification in the draft regulation.
    - Including the handling of measurement uncertainty in SANTE PLAN 2023 2726 Rev.6. While we believe the handling of measurement uncertainty will be included in Regulation EC 333/2007 if the regulation is adopted, this was not included in SANTE PLAN 2023 2726 Rev.6. We have asked for confirmation in writing since it is often critical to be able to apply the measurement uncertainty to be in compliance with the MOAH regulation.
    - Requesting European Commission guidance on the need for a laboratory proficiency program for EPA/DHA omega-3 oils. Since the submission of GOED's letter last year to the EC, the interlaboratory variability in reported MOSH and MOAH testing values remains unacceptably high and the only way to know which third-party

laboratories are accurate is to have a laboratory proficiency program in place for the relevant products, which does not currently exist for EPA/DHA omega-3 oils.

- ❖ Recognition of limitations in the analytical testing and confirmatory analyses of EPA/DHA omega-3 oils because of inevitable matrix interference. Matrix interference in the analytical methods is an important issue inherent to specific food groups, including omega-3 oils. We have asked the EC for guidance after pointing out specific challenges in the omega-3 sector.

- We have not yet received a response from the EC. We may remind the EC of our letter soon.

- **EC stakeholder forum on MOH in food additives**

  - **Gerard –** We did receive a communication from the EC regarding participation in a stakeholder forum on October 3 about MOH in food additives. We submitted a letter to the EC in March last year about MOH in mixed tocopherols, specifically pointing out the extremely high levels of matrix interference observed in these antioxidant products, often used in our sector to stabilize omega-3 oils. In the Current that will come out on Monday, we are asking if any GOED members have made progress in quantifying MOH contamination in mixed tocopherols, or in approaches for mitigation of MOH and interferences in mixed tocopherol products. Please contact us in the next few weeks if you do, as that allows us to participate constructively in this forum. If we don't have any news to inform the EC about, we may decide not to participate in the forum, or ask to listen in.

  - For those of you who are new to our group – we have a "MOH Resources" page on our website (link), with a lot of information about MOH we have discussed over the course of the past few years.

    - **Action item -** Reach out to GOED about progress on MOH and interferences in mixed tocopherols (Technical Committee/Gerard)

- **EFSA - Updates on various new contaminants**

  - **Gerard –** We have an update on various miscellaneous recent proposals for regulations of different contaminants in Europe. These are perhaps not in all cases directly related to omega-3 oils but are provided in case this has some relevance to your business. I know people like to hear such varied updates.

    - ❖ Nickel:

In 2020 EFSA published a Scientific Opinion on nickel – "Risk assessment of nickel in food and drinking water", and had set a Tolerable Daily Intake (TDI) of 13 µg/kg bw - Link. Recently, on July 1, 2025, maximum limits (MLs) for nickel in food were enforced in the EU. No MLs for edible oils, but does apply to infant formulae, follow-on formulae, food for special medical purposes intended for infants and young children and young-child formulae (the ML applies to the product as placed on the market).

MLs (mg/kg):

3.6.13	Infant formulae, follow-on formulae, food for special medical purposes intended for infants and young children ([3]) and young-child formulae ([4])	
3.6.13.1	placed on the market as powder except products listed in 3.6.13.2	0,25
3.6.13.2	placed on the market as powder and manufactured from soy protein isolates, alone or in a mixture with cow's milk proteins	0,40
3.6.13.3	placed on the market as liquid	0,10

See: Amending Regulation (EU) 2024/1987 to the European Contaminants Regulation (EU) 2023/915 came into force in August 2024. Requirements for the sampling and analysis of nickel in foodstuffs - Implementing Regulation (EU) 2024/1045 (incorporated into Regulation (EU) No. 333/2007).

❖ Nitrosamines:

There has been attention on the presence of nitrosamines in pharmaceutical products, and increasingly in food. In March 2023 EFSA published this Scientific Opinion, "Risk Assessment of N-nitrosamines in food" – Link, which reported that fish consumption is one potential source of exposure to nitrosamines. No link to edible oils has been made yet. The EC has recently initiated a monitoring activity for 16 N-nitrosamines in food: NDMA, NMEA, NDEA, NMOR. NDPA, NDBA, NMA, NSAR, NPYR, NPIP, NDIBA, NDPhA, NEIPA, DIPNA, NMBA, MeNP. We will return to this topic when we know more about the EC's findings.

❖ Bromide:

On 28 Jan 2025, EFSA published a Scientific Opinion, "Risks to human and animal health from the presence of bromide in food and feed " (Link), and set a TDI of 0,4 mg/kg bw. No link to edible oils has been made yet. Most exposure is derived from various human-made sources (pharmaceutical products, biocidal products, pesticides, flame retardants). Bromide occurs naturally in seawater.

- Recently, two types of contaminants were included in the Regulation (EU) 2019/1021 (Link) Annex A, of the European Parliament and of the Council on persistent organic pollutants (regulated as unintentional trace contaminants (UTC) in, for example, food packaging materials):

  - PFOS (incl salts and PFOS-related compounds), with a ML of 0,025 mg/kg in the category "substances, mixtures or articles".

  Note added to the minutes: PFOS, together with all other PFAS will be regulated from August 12, 2026 in the "new packaging directive" EU 2025/40, including food contact materials (link)

  - UV-328 (2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentylphenol), with a ML of 100 mg/kg in "substances, mixtures or articles" from Aug 4, 2025 (max 10 mg/kg Aug 4, 2027; max 1 mg/kg Aug 4, 2029). (UV-328 is used as a UV stabilizer in plastics, rubber, resins, inks, personal care products, and food contact materials)

- Furans and methyl furans:

  In March 2022, the EC initiated the monitoring of furan and methylfurans (2-methyl furan and 3-methylfuran) in food (Link). This followed a Scientific Opinion by EFSA in 2017 (link), concluding a human health concern from exposure through food, especially in infants. The EC has recently proposed maximum levels for the sum of furan, 2-methyl furan and 3-methyl furan for the following types of food for babies, infants and young children, with a (passed, May 2, 2025) deadline for comments:

  - Processed cereal based foods for infants and young children: 40 µg/kg

  Baby food:

  - Dairy-based and fruit-based baby food: 30 µg/kg
  - Other baby food: 80 µg/kg

- We will return to discussing any of these contaminants if the situation becomes more relevant to our sector.

All Other Business (Jenna Ritter)

- **MOAH tri- to polyaromatic fraction (TPAFs) quantification now available (Simone Staiger - Eurofins)**

  - **Simone Staiger (Eurofins) –** We have already discussed MOSH/MOAH and the whole topic of the analytical part. Many labs today analyze MOH by LC-GC-FID. And I think that everybody knows that everything is integrated under the hump. Now this is sometimes a challenge regarding interferences. We are able since last year to do a qualitative characterization using GC x GC–TOF-MS that can distinguish MOSH and MOAH from interferences. And since the beginning of this month, we are also able to quantify the three- and polyaromatic MOAH fractions using GC x GC-FID - Link

- **Phthalates as additives to softgel capsules**

  - **Gerard –** About a month ago, a publication appeared in The Independent, a UK newspaper, with the tile "*Warning as softgel capsule supplements linked to range of health concerns*", in which it was claimed that phthalates are present in soft gel capsules (link). We don't think this publication received a lot of attention, but we did contact some of the contract manufacturers in GOED to shine some light on this claim. For your information, here are two responses we received.
  - **Response 1:** *We don't use phthalates for dietary supplement softgels. Several phthalates are approved for pharmaceutical use, including diethyl phthalate, cellulose acetate phthalate, polyvinyl acetate phthalate and hypromellose phthalate.*
  - **Response 2:** *We do not use any phthalates during the manufacture of soft gelatin capsules. In the past 20 years, we have never come across a food supplement product using phthalates in the capsule shell. We have only ever seen them in certain pharmaceutical products, and even then, only in older, legacy formulations, where they have historically been used as plasticizers within the gelatin matrix. Some low-cost imported supplements may contain them, but this is certainly not standard practice within the EU manufacturing base. Phthalates are not permitted as food additives under EU Regulation (EC) No 1333/2008 and therefore have no E numbers. However, their presence in softgel shells is legally tolerated under Regulation (EU) No 10/2011 on food contact materials. Under this framework, certain phthalates (e.g. DBP, DEHP, BBP) are permitted within strictly controlled specific*

migration limits. The media coverage tends to conflate pharmaceuticals with food supplements, and the article lacks important context. It risks misleading readers by suggesting that phthalate use is widespread in supplements, which does not reflect EU manufacturing norms. In reality, most EU softgel manufacturers do not use phthalates and comply with both regulatory requirements and evolving consumer expectations.

- **Gerard –** So it appears that the newspaper article did not provide the right context and took things out of proportion.
  Note added to the minutes: Phthalates are not regulated in the EU in food today, but EFSA published a Scientific Opinion (2019) and issued a Tolerable Daily Intake limit of 50 microgram/kg bw for the sum of DBP, BBP, DEHP and DINP (*i.e.* a "group TDI" - link). This TDI is not a legal limit in the EU, but it gives an idea what daily dose of a product would be below or supersede this daily intake limit. in addition to the group TDI, there are individual TDIs, but they too are used primarily for risk assessment and not directly legally enforceable when measured in food.

- **Updated technical guidance on trans fatty acids analytical methods for EPA/DHA oils (*member question* – Ida Aspmodal, KD Pharma)**

  - **Gerard –** Ida (*absented for today's meeting*) had a question regarding the most suitable analytical method for determining trans fatty acid content in marine oils. We have reviewed this in the past and made a summary document in 2018. The most suitable method for trans fatty acids in omega-3 oils is considered the in-house method developed by Nofima BioLab (Fyllingsdalen/Bergen area, Norway). Bjørn Ole Haugsgjerd gave a GOED Technical Committee presentation "Trans Fatty Acids in Samples of Marine Origin" in April 2023: Link. Nofima Biolan also developed in-house standards for trans-EPA and trans-DHA. Their data show that most of the trans fatty acids in omega-3 oils are found in the EPA and DHA regions.

    The question is whether the Nofima method has been compared with more commonly used methods, such as AOAC 996.06? AOAC 996.06 method is a general-purpose fatty acid profiling method that detects both cis and trans isomers. However, it typically relies on reference materials such as GLC 85 (Nu-Chek Prep), which includes only one trans fatty acid (C18:1 trans). This makes it unsuitable for accurate quantification of trans-EPA and trans-DHA, and it may significantly underestimate the trans content in marine oils. Nofima emphasizes that no existing AOCS or AOAC method is truly optimized for oils with high levels of EPA and DHA, such as fish oils and algae oil concentrates, with unique fatty acid profiles that other methods will fail to capture accurately. Methods developed for other commodities such as milk or vegetable oils focus on quantifying the trans fatty acid isomers of monounsaturated fatty acids, linoleic acid and alpha-linolenic acid only. In addition, in

marine oils analysis, one has to take precautions regarding correct identification of target fatty acids as trans fatty acids can coelute with regular fatty acids.

We like to ask the committee if anyone has new information about trans fatty acid analysis in marine oils? We could discuss that in our next meeting.

- **Ali Zaferanloo (Aker Biomarine)** – I just wanted to comment that at Aker Biomarine from time to time we are asked by our customers to test trans fatty acids. This is not our regular testing, and we typically send the sample to Nofima for testing. We are also very interested in learning which method is the best for everybody.
- **Gerard** – Our previous conclusion was that indeed the method developed by Nofima Biolab is the only accurate method for marine oils. They have also developed the synthetic standards for the various EPA and DHA trans fatty acids. These can be purchased and set up the method in-house, but in practice people prefer to send the samples to Nofima Biolabs directly. We are not aware that this is planned to be implemented as an official method.

- **Action item** – Share any new information about suitable testing methods for trans fatty acids in EPA/DHA omega-3 oils (Technical Committee)

- **Trace metals monitoring & oxidation (*member question* – Adin Smith, Nordic Naturals)**

  - **Adin Smith (Nordic Naturals) –** Besides the heavy metals we typically measure for quality purposes, there are trace metals that can catalyze oxidation at very low ppt levels, such as copper, iron, chromium, zinc, and manganese. I wanted to ask the committee if crude oil manufacturers and omega-3 refineries typically monitor these metals for their potential influence on oil oxidation and shelf life. For those who are currently monitoring these metals, what is your preferred technology and method for measuring trace metals in this scenario? Has anyone been able to make semi-definitive conclusions or associations with the oxidative stability of oils related to metal concentrations over time? If so, how did you go about this?

- **Hexane as extraction solvent (*member question* - Heike Meyer, Imperial Oel)**

  - **Heike Meyer (Imperial Oel) –** I just wanted to ask if there is anyone among the GOED members who also uses hexane as a solvent? I know this was already discussed in the previous committee meeting. May be there are other GOED members that use hexane for their vegetable oil, or krill oil or microalgal oil? We would like to know if there are other members who want to submit data (*to ECHA*). We want to submit data with our manufacturing partner, as it is mandatory due to our special manufacturing process. We are also thinking about alternatives, but I don't have a feeling if there is a big number of

manufacturers who also like to make an evaluation of alternative solvents. I have a lot of questions. If any other members share this interest, please contact me.

- **Action item –** Companies that use hexane as an extraction solvent to reach out to GOED to get in touch with Heike Meyer (Technical Committee)

- **Technical publications notification**
  - **Jenna –** You have received the regular list of recent technical publications together with the agenda. Please take some time to browse through the titles.

Presentation:

***"Lipidomic Analysis for the Characterization and Mode of Action of Edible Oils"* - Paolo Bonini, oloBion, Barcelona, Spain**

A pdf copy of the slides will be distributed with the minutes, and a copy of the presentation will be uploaded to our GOED Presentations folder (link) after the meeting.

Q&A

- **Gerard** – You show lipidomics measurements in skin using tape stripping. Do lipid changes in the skin follow the changes in plasma or blood cells?
- **Paolo –** We have done studies measuring both in skin and in plasma, and then you see markers that correlate very well. We have not done that with blood cells. It is true that plasma plus skin gives you two different perspectives. In skin, you can follow metabolic changes of live cells, which you don't see in plasma.

- **Gerard** – Have dietary supplement companies started to analyze the composition of their products with you?
- **Paolo –** Yes. We have done many characterizations for plant extracts, for example. We also run several clinical studies every year together with nutraceutical companies that want to know better how their products really work. We also get the functional data, for example on transepidermal water loss, skin elasticity and roughness. So, it is not just the omics part.

End of meeting.

Summary of Action Items

- **Action item** – Reach out to GOED about progress on MOH and interferences in mixed tocopherols (Technical Committee/Gerard)
- **Action item** – Share any new information about suitable testing methods for trans fatty acids in EPA/DHA omega-3 oils (Technical Committee)
- **Action item –** Companies that use hexane as an extraction solvent to reach out to GOED to get in touch with Heike Meyer (Technical Committee)

Date of next meeting

- The next Technical Committee meeting will be scheduled for Thursday, September 4th, 2025.

USEFUL LINKS:

- Useful documents that the committee has discussed can be found in the Technical Committee folder. You can upload any material there yourself as well: https://drive.google.com/drive/folders/0B-5CurmVIvvETm1Wd29xemU5YVU

- Past minutes can be found here:
  2025 - https://drive.google.com/drive/folders/1st1PlkU7Z0_3Phy4uya_ucmc34ThuWrG?usp=drive_link
  2024 - https://drive.google.com/drive/folders/16WcCbtwh_NY09cnx-pEpnANbubBv7Wmo?usp=drive_link
  2023 - https://drive.google.com/drive/folders/1Q_aJTzxZL106KkZJUkgrkLT2MdgDiEXh?usp=share_link
  2022 - https://drive.google.com/drive/folders/1Pt8CJafBCjIYaLZF0ZJ08csPqlzW5XaC?usp=sharing
  2021 - https://drive.google.com/drive/folders/1VGy-t4TuWtDUB30jU98unIxWYzpnZuNj?usp=sharing
  2020 - https://drive.google.com/open?id=1olF0Ab9UeGO_VaQpSshICS3xn0V8IiLK
  2019 - https://drive.google.com/drive/folders/0B0usR2nagMSpSU1aaTR6Ty0yTE0
  2018 - https://drive.google.com/open?id=1lXXmBgN3F9XwZnXKxqq0hwC-oLZl9rc_
  2017 - https://drive.google.com/drive/folders/0B6uJWj5y9FY9NDRRS2lVdUQ1ZWs
  2016 - https://drive.google.com/drive/folders/0B6uJWj5y9FY9UVZpU3NLejBIMEk

- GOED Presentations - GOED Presentations (goedomega3.com)

- GOED Newsletters: If you do not receive newsletters from GOED, please sign up since this is our best way of communicating with members. Here is the link: https://goedomega3.com/members/subscribing-goed-current