

DGF statement 2023 on Mineral Oil Contaminants in Food

Summary of the 4th International Congress, Berlin, 5-6 June 2023

Toxicology

- **Results of the EFSA opinion:**

- MOSH: Minor toxicological concerns, however the ALARA-principle must be applied

- MOAH: Carcinogenicity for compounds with equal or more than 3R has been confirmed

- more data on distribution of ring systems in composed food are needed

- **New approach:** Results from combination of multidimensional instrumental analysis and AMES-test for the toxicological evaluation of MOAH are in good agreement with the EFSA opinion

DGF statement 2023 on Mineral Oil Contaminants in Food

Summary of the 4th International Congress, Berlin, 5-6 June 2023

Analytics

- A new ISO-method 20122 for fats and oils will be available soon: Application level: MOSH 3 mg/kg – MOAH 2 mg/kg
- Harmonization is still challenging and ongoing
- Comparability of the results are still not sufficient
- Depending on the food matrix different analytical tools like LC-GC-FID or GC-GC-ToF-MS/FID have to be used to get reliable results
- GCxGC is a powerful tool for the determination of different ring systems
- Harmonization of this approach by ring trails is urgently needed
- New epoxidation clean-up has been developed, but depending on the composition higher losses have been found (the larger the number of rings the higher the losses)

DGF statement 2023 on Mineral Oil Contaminants in Food

Summary of the 4th International Congress, Berlin, 5-6 June 2023

Risk Management

- Nine different product groups with different levels have been established in the benchmark level concept
- transfer of benchmark levels to legal levels is demanded by several stakeholders
- Maximum level can be established when evidence becomes available, which indicates a risk to human health
- ML on basis of occurrence data according to the ALARA principle
- Regulation on method of sampling and analysis for the control of MOAH in food
- New monitoring recommendation
- Action for laboratories to develop methods to quantify MOAH with a specific number of aromatic rings

DGF statement 2023 on Mineral Oil Contaminants in Food

Summary of the 4th International Congress, Berlin, 5-6 June 2023

Mitigation

- Toolbox has been developed as a strategies to optimize GMP
- Benchmark levels as an element of a successful mitigation process
- Prevention of contamination should be avoided already at the beginning of the production chain
- Engaging the producing countries is key for successful mitigation (still lack of awareness, knowledge and testing capacities)
- Different commodities do have different challenges regarding MOH
- Only a limited amount of MOH can be removed by refining (up to 40%, depending on MOH composition)
- Uncertainty of the analytical methods is still a great problem
- Discrimination between MOAH and non-MOAH is necessary
- Olive pomace oil shows some unusual results with regard to MOSH and MOAH which need special interpretation
- Running project from the German industry is searching for possibilities to minimize mineral oil components in fats and oils by application of MOH-free lubricants and using MOH-free means for hexane recovery