

## Food Safety in Confectionery

For decades now, all members of the Association of the German Confectionery Industry (BDSI) have had a preferred partner for all scientific issues concerning their products: the modern, confectionery specialized, association's own Food Chemistry Institute (LCI).

Among others, the LCI is an expert contact for the following:

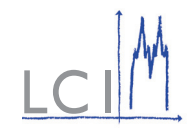
- Quality and food safety
- Research and modern analytics
- Minimization of process contaminants
- Minimization of contaminants, e. g. MOSH/MOAH



### Contact

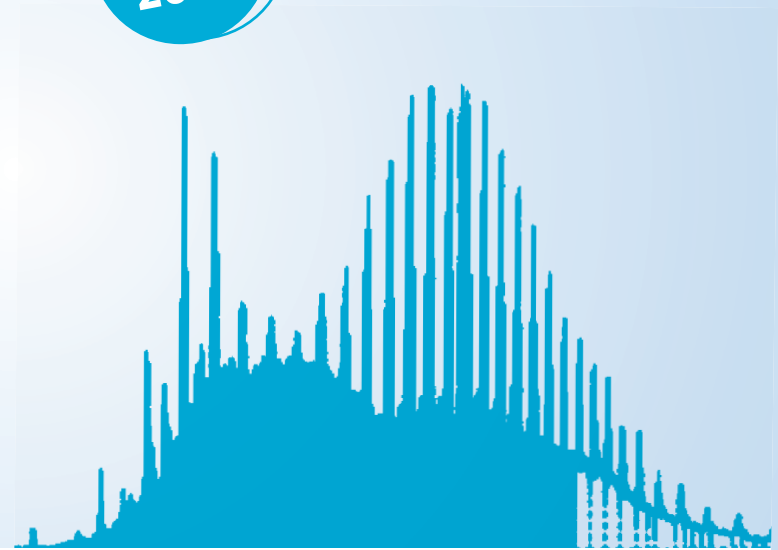
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## RESEARCH PROJECT

# Minimization of MOSH/MOAH in food



## Research Milestones

This project is funded by the BDSI and the Foundation of the German Cocoa and Chocolate Industry. The main objective is to identify factors for potential entry sources of MOSH and MOAH along the entire food chain to allow for their effective minimization.

While the so-called BDSI Coordination Committee controls the project and provides the samples, the LCI, as association's own research competence center, will perform the analytical and scientific work and make its findings available to all members of the BDSI.

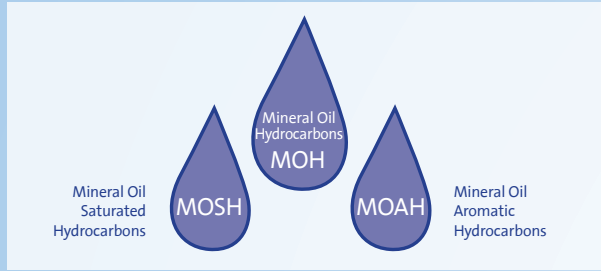
Research in the LCI is directed toward three major goals – the milestones:

- Quantification of total MOSH and MOAH  
LC-GC-FID
- Characterization of substance groups and compounds  
GCxGC-ToF
- Detection and tracking of entry sources  
Database

LC-GC-FID Liquid Chromatography-Gas Chromatography-Flame Ionization Detector  
 GCxGC-ToF Comprehensive Gas Chromatography-Time of Flight Mass Spectrometry

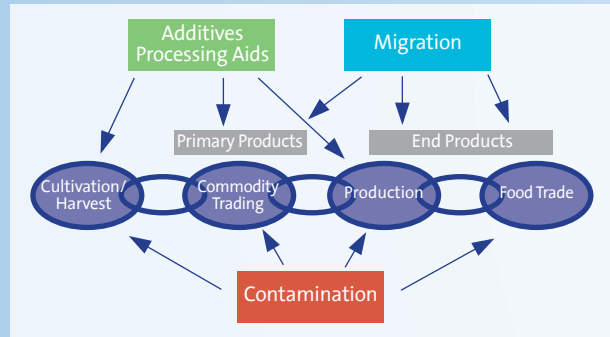


## What are MOSH/MOAH?



Mineral oils are highly complex mixtures of myriads of hydrocarbon compounds. MOSH are open chain or cyclic, saturated mineral oil hydrocarbons. MOAH include aromatic mineral oil hydrocarbons that consist of highly alkylated mono and/or polyaromatic rings.

## Potential Points of Entry

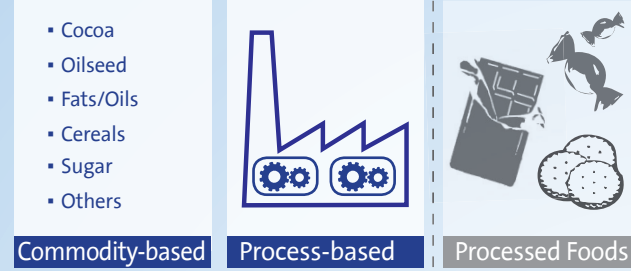


MOSH/MOAH can migrate from contaminated food contact materials (e. g. recycled cardboard) into food or commodities already during storage and transport.

Another source is accidental contamination, e. g. from machine parts leaking lubricating oil or through environmental influences across the entire process chain.

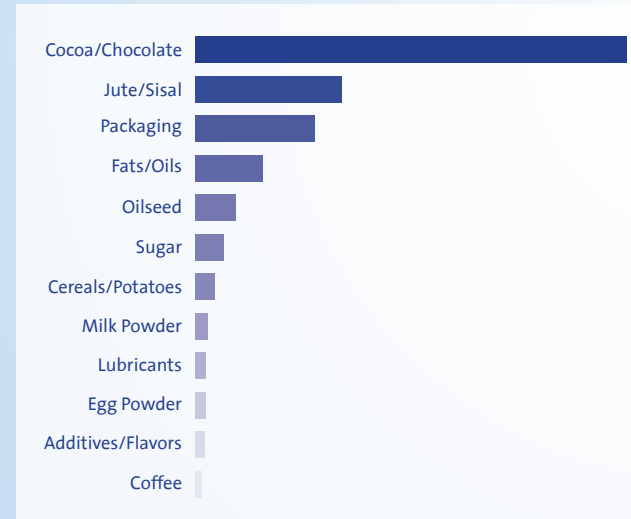
The possible entry of mineral oil components by use of certain additives and processing aids in the cultivation, harvest, trading and production process cannot be excluded.

## Scientific Approach



This project focuses on the commodities but also on the diverse manufacturing processes. This approach allows a cross-sector identification of possible entry sources across the diverse range of products and the development of purposeful approaches for minimization.

## Sample Pool



Since the beginning of the project in 2013 more than 2000 samples have been collected from the various involved sectors.

## Toolbox Concept

The MOSH/MOAH toolbox will be developed in a joint effort between the scientists of the LCI, the BDSI research officers and experts. It is a collection of data and instructions that enables the food manufacturers to minimize mineral oil contamination of their products actively. The toolbox concept gives further guidance for optimization along the entire process chain.

The toolbox concept follows the possible points of entry:



## Know-how for BDSI member companies

The outcomes and findings from this research project are the basis for the newly developed MOSH/MOAH toolbox. It includes *general tools* (across products) but also *specialized tools* for individual product groups.

The basic version is available online for BDSI members:



## Toolbox Examples

### General Tools

- Apply functional barriers
- If recyclates are used adapt storage and transport conditions to prevent migration
- Use printing inks low in mineral oil
- Use adequate jute bags according to IJO (food grade) and adequate natural batching oils
- Use certified lubricants

### Specialized Tools

- Use adequate jute bags for cocoa transport in the country of origin
- Use container dressings (made of cardboard) for cocoa shipping with low mineral oil content