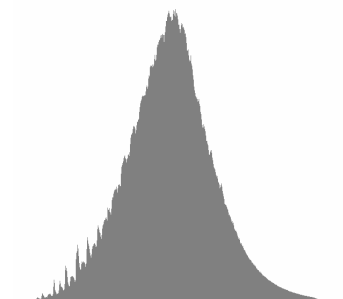




Workshop of the European Commission and the Official Food Control Authority of the Canton of Zurich

Mineral oil material in foods: analytical methods, occurrence, evaluation



Wednesday September 17, 2008 10:30 to Thursday September 18, 16:00,
at the Official Food Control Authority of the Canton of Zurich (Kantonales Labor),
Fehrenstrasse 15, CH-8032 Zurich, Switzerland (<http://www.klzh.ch/kontakt/index.cfm>)

Recently some Ukrainian sunflower oils were found to be contaminated with hydrocarbons of mineral oil origin. This resulted in the need for analyzing mineral oil components in edible oils (such as sunflower oil) and fatty foods (such as those made from sunflower oil).

The method has to distinguish the mineral hydrocarbons (usually a complex mixture of branched and cyclic paraffins) from those of plant origin (largely n-alkanes of predominantly odd-numbered species). In more complex foods it must also be distinguished between different sources of mineral paraffins, since the evaluation and the measures to be taken depend on it. Mineral paraffins are found in many foods and are the probably largest contaminant of our body fat. First results on the analysis of the alkylated mineral (poly)aromatics will be shown to support the distinction between potential sources and improve risk evaluation.

The main subjects of the workshop are:

1. Mineral oil products potentially encountered in foods: training of the eyes to recognize the chromatographic patterns.
2. "Manual" methods of analysis: the mineral paraffins are isolated from edible oil or a fatty food extract by column liquid chromatography and analyzed by GC-FID, possibly using large volume injection (30 μ l on-column injection, 30 μ l splitless injection with concurrent solvent recondensation).
3. Aluminium oxide as a packing material for column liquid chromatography has particular properties: when activated at high temperature it retains the n-alkanes exceeding about C₂₀, but may also retain some branched hydrocarbons. This may be beneficial for the detection of low concentrations of mineral paraffins. Silica gel does not show this behavior. When to use which adsorbent?
4. Analysis by on-line HPLC-HPLC-GC-FID: automated, highly accurate and with a low risk of sample contamination during analysis. Transfer technique to introduce some 300 μ l HPLC eluent into GC.
5. Mineral oil products in foods: sources identified and concentrations found in certain foods in the past, to help distinguishing the contamination of sunflower oil from others.

6. Analysis of the (highly alkylated) mineral aromatics: not all mineral oil products contaminating foods are "food grade" "white oils": HPLC-GC and characterization by comprehensive two-dimensional GC (GC x GC).
7. Summary of the toxicological evaluation, and some results on mineral paraffins found in human body fat and human milk.
8. Organization of a proficiency test by JRC-IRMM.

Lecturers are Frans Verstraete (European Commission), Beat Brueschweiler (Swiss Federal Office of Public Health, SFOPH), Thomas Wenzl (JRC-IRMM), Maurus Biedermann and Koni Grob (Official Food Control Authority of the Canton of Zurich).

The workshop includes lectures and practical demonstrations of the methods and techniques in the laboratory. It is intended for the delegates of the European Commission and the EU Member States, as well as for a limited number of participants from research institutes and industry.

It is planned to organize a restaurant for a common dinner on Wednesday evening.

Some samples brought by the participants can analyzed during the workshop.

Registration up to August 25: Maurus.Biedermann@klzh.ch

Registration fee: CHF 1000.- (including coffee/tea at breaks), to be paid on invoice



Kantonales Labor Zürich
Fehrenstrasse 15
CH-8032 Zurich
Switzerland

Phone: +41 (0)43 244 71 00

Access to Kantonales Labor:

- from airport by train to Zurich main station (Hauptbahnhof); train ticket includes tram (return tickets are valid for 24 hours).
- from Hauptbahnhof by tram 3 direction Klusplatz up to Hottingerplatz, 300 m walk uphill; signboard "Kantonales Laboratorium" on wall at the corner Dolderstrasse/Fehrenstrasse.

