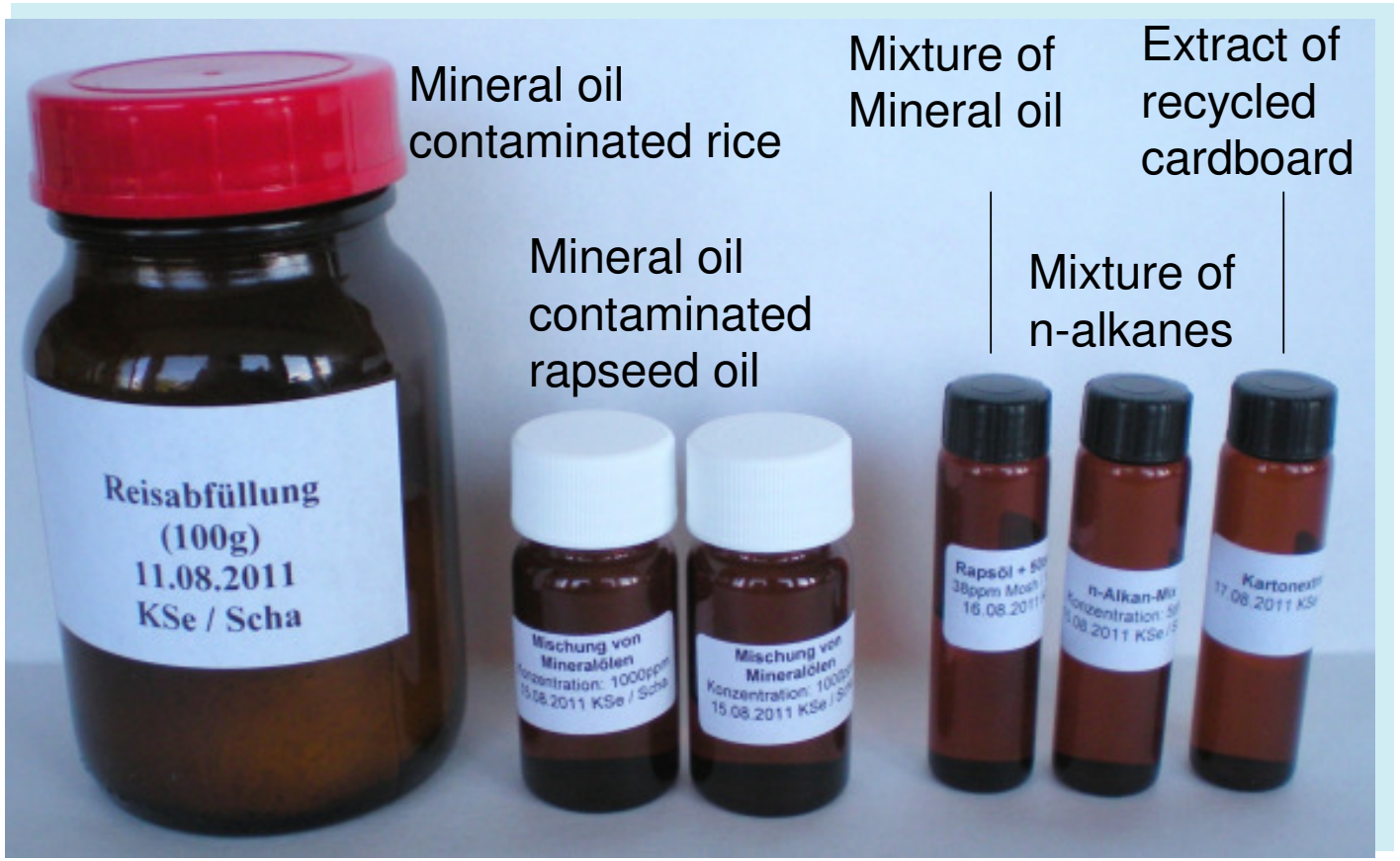
BfR
Risiken erkennen – Gesundheit schützen

Method development kit for mineral oil

Dr. O. Kappenstein

Set up of the method development kit

- Different samples



- Full description of the mineral oil kit (characterisation of all samples)

- Standard operating procedure (SOP) of the „Manual“ method

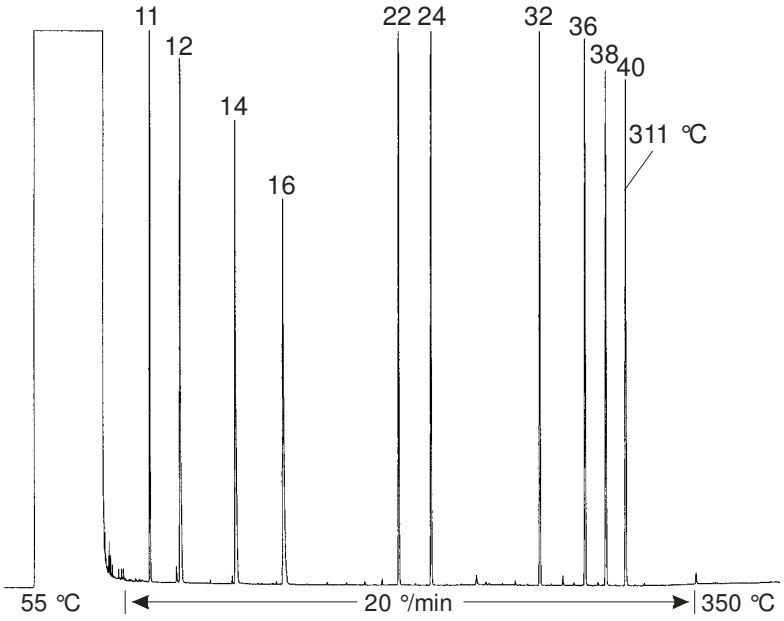
Mixture of n-alkane

Included saturated hydrocarbons:

n-C_{11}, n-C_{12}, n-C_{14}, n-C_{16}, n-C_{22}, n-C_{24}, n-C_{32}, n-C_{36}, n-C_{38}, n-C_{40}

Objectives of the n-alkane mixture:

- Discrimination of the volatile saturated hydrocarbons during enrichment steps
- Proof of linearity of injection (loss of volatile and high-boiling saturated hydrocarbons)
- Seperation between n-C_{11} and injection solvent
- Examination of the baseline concerning column bleed
- Interferring peaks



Mixture of Mineral oil

Constituted of printing ink oil, engine oil, backing pump oil and n-C22

Due to the fact, that this mixture contains exclusivly mineral oil compounds, the seperation of foreign hydrocarbons will be omitted .

Objectives of the mineral oil mixture:

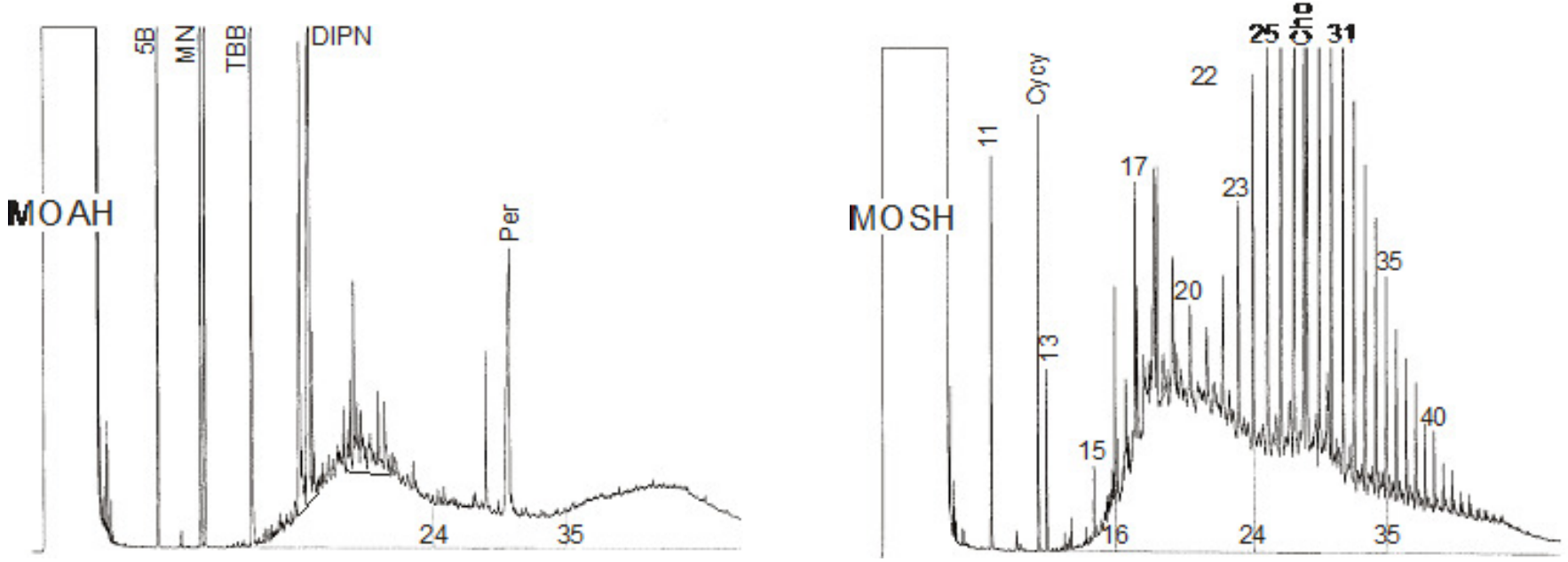
Analysis with and without pre-separation of MOSH and MOAH

- Setting the relevant integration events
  - MOSH: n-C16 up to n-C24 (gas phase transfer into dry food)
  - MOAH: Up to n-C24 (gas phase transfer into dry food)
- Appropriate integration within each mineral oil fraction
- Appropriate separation between MOSH and /MOAH

Extract of recycled cardboard

Objectives of the extract

- Separation between MOSH and MOAH
- Comparison of the given MOSH and MOAH chromatogramms
- Quantification of MOSH and MOAH
- Manual Method (e.g. on-column GC-FID); LC-GC-FID



Mineral oil fortified rapeseed oil and rice

Objectives

1. Constituted of printing ink oil and a customary rapeseed oil

- Used for quality assurance (*worst case sample!*)
- Comparison of the given MOSH and MOAH chromatograms
- Quantification of MOSH and MOAH
- Manual Method (e.g. on-column GC-FID); LC-GC-FID

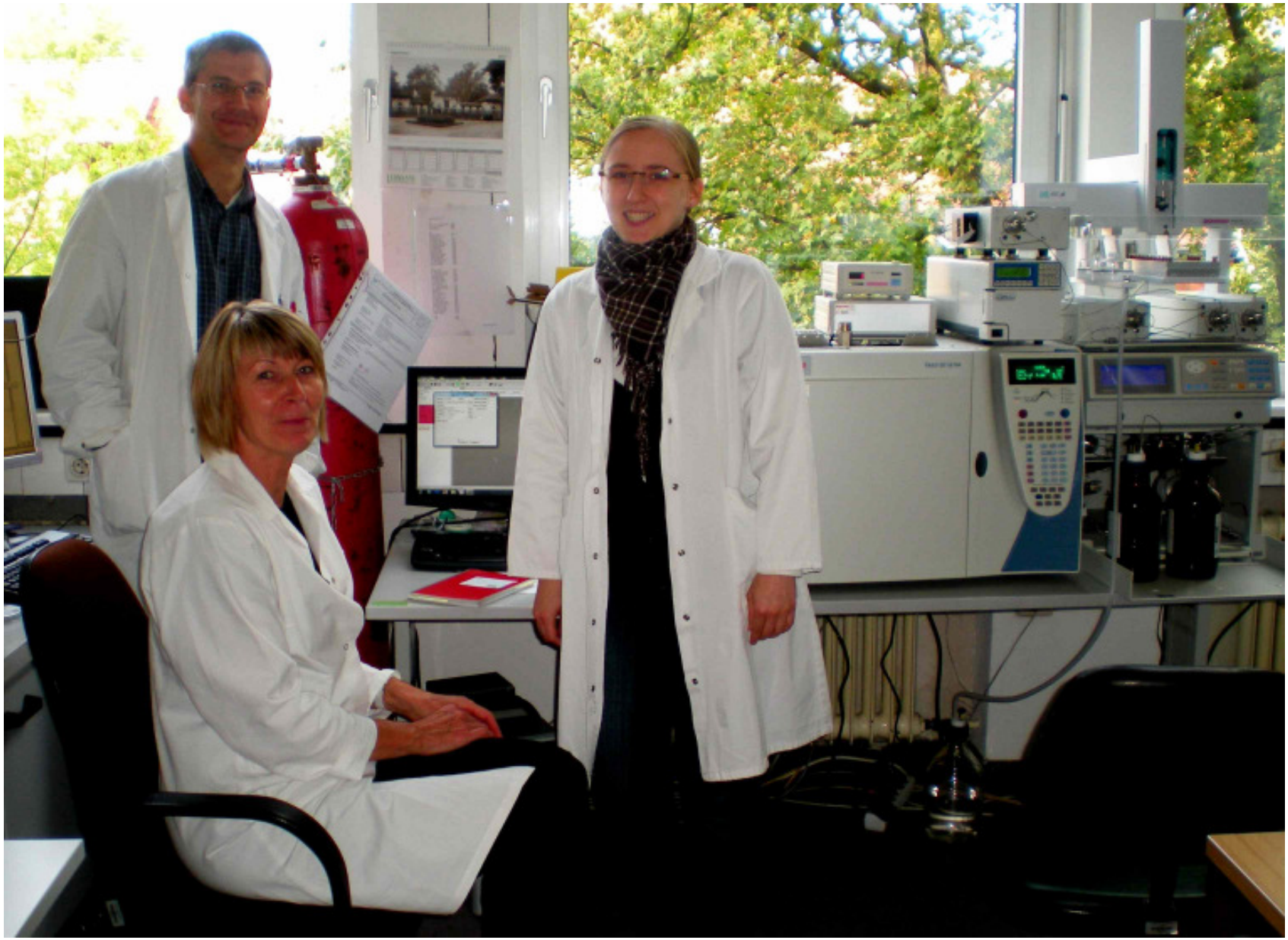
2. Rice contaminated via gas phase transfer

- Separation of MOSH and MOAH
- Comparison of the given MOSH and MOAH chromatogramms
- Quantification of MOSH and MOAH
- Manual Method (e.g. on-column GC-FID); LC-GC-FID

Outlook & further steps

- Method development kit
  - Ready for shipment at the earliest in 3 – 4 weeks
  - Together with the standard operating procedure (SOP) of the „Manual method“ (will be available in German and English language)
- Compendium on measurement of hydrocarbons from mineral oil and plastics in food and packaging (will be published in German language)
- Separated parts of this compendium will be published in peer-reviewed papers

Mineral oil expert-team



FEDERAL INSTITUTE FOR RISK ASSESSMENT

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Thank you for your attention

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