

Silvia Apprich & Christian Kirchnawy:
Summary & Outlook on final steps

Summary of the new results presented today

- >Improving the Sense Ames
 - >Improving LEC values compared to other Ames assays
 - >Testing plastic extract samples
- >Testing packaging materials with different printing ink types
 - >No general safety concern, but mutagenic effects in some printed samples when tested directly on the outside
 - >No obvious connection to binders
- >Migratox Method can be a useful tool for specific safety topics such as MOSH-MOAH analytics
 - >Publication picked up by EFSA and JRC and serves as one reference that not all MOSH-MOAH fractions are critical at low concentrations

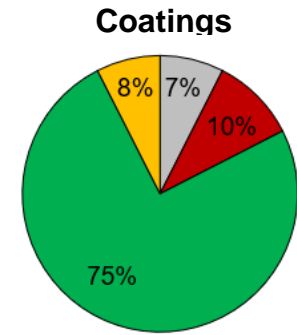
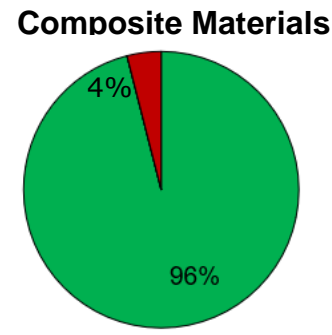
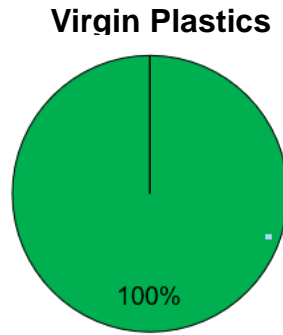
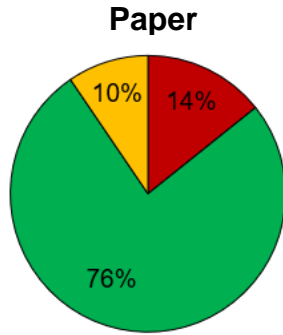
Summary: Achievements in Migratox Project

- **Selection of Bioassay Battery**
 - Comparison of 8 different genotoxicity assays
 - Selection of a miniaturized Ames test (optionally combined with endocrine activity tests)
- **Sample preparation:**
 - Development of 2 sample preparation methods, concentration factor 300 – 2.000
- **Sensitivity:**
 - Approx. 5-fold Improvement by Miniaturization of Ames Test
 - Further Improvement with the optimized miniaturization format Ames Sense
- **Validation:**
 - Whole method including all sample preparation steps was validate, Intra- and Interlaboratory Studies prove reliability
- **Standardization**
 - Publication of Strategy in ILSI Expert Group Paper
 - Publication of Test Method

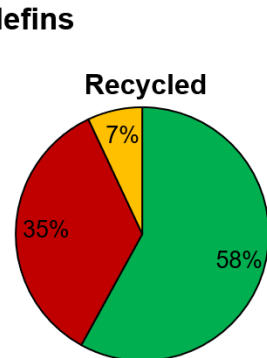
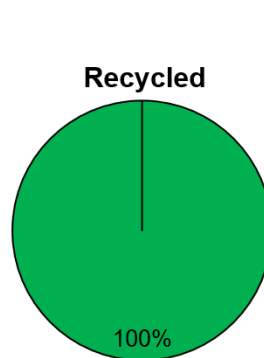
Summary: Achievements in Migratox Project

- **Sample Screening:** > 500 samples analysed with bioassay battery

Material Groups



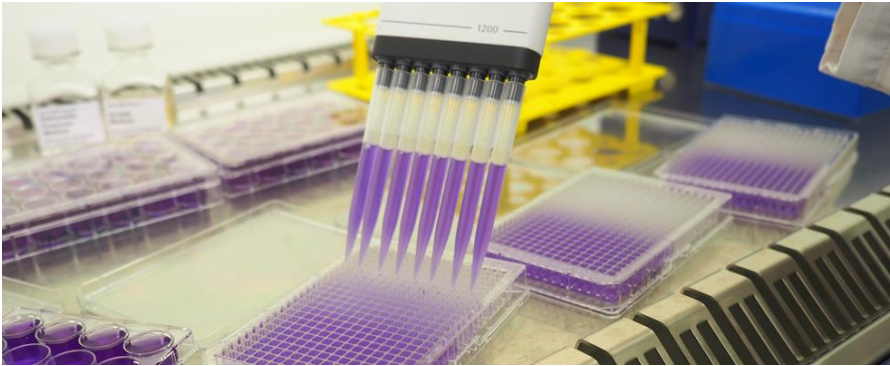
Recycled Plastics



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Ongoing Research

- >Fractionation of migrate samples
 - >TLC method by FHCW
 - >SPE method by OFI
- >Further development of the Sense Ames
- >Ongoing sample screening with a focus on printing inks
- >Identification of possible DNA-reactive contaminations



Migratox - End of the Project, but Research goes on!

- > Funded FFG Project “Migratox” ends 2023
- > Final Project Meeting: 24. January 2024
- > **But: The research goes on!**

Method Development & Validation

Project Migratox

Application of developed Methods

Project PolyCycle:
Application for recycled
Plastic

Project SafeCycle: Identification of
sources for mutagenicity

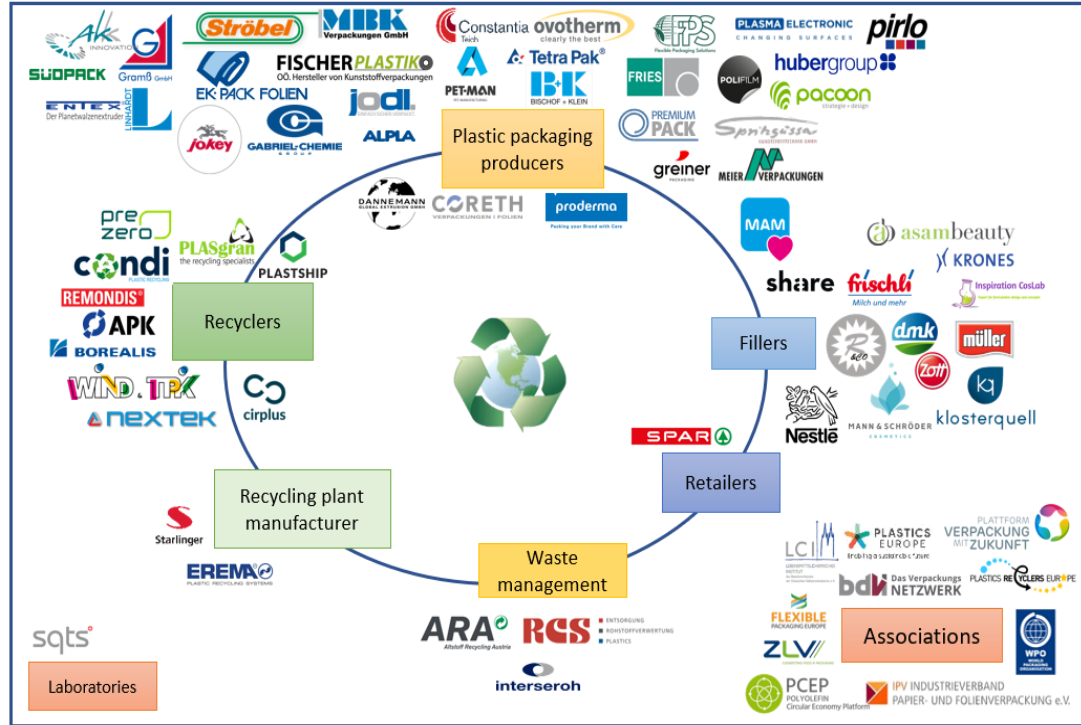
Project Pack2theLoop: Evaluation
of Recycling Loops

Project MOSH-MOAH: Migratox-Methods
for Mineraloil contamination

Project SustainFibresFCM: Migratox Methods
for Alternative Fibre Materials

Routine Testing with Migratox Methods

Project SafeCYCLE: Application of Migratox Methods for Recycling



Research goes on!

Authorities

Bundesministerium
Soziales, Gesundheit, Pflege
und Konsumentenschutz

of developed Methods

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sources for mutagenicity

2theLoop: Evaluation
recycling Loops

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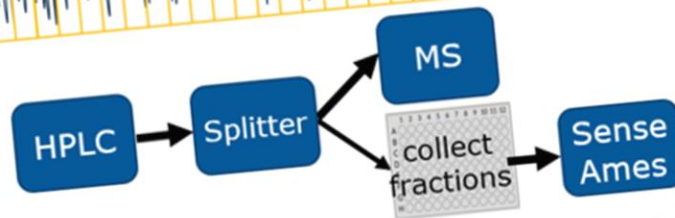
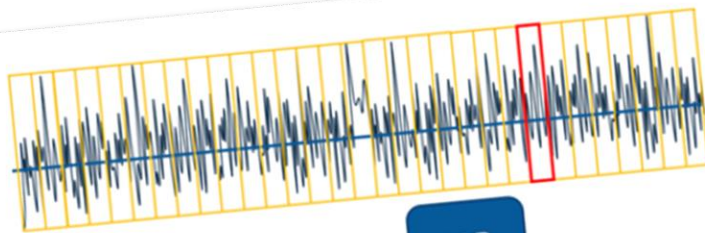
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Routine Testing with Migratox Methods

Effect-detection by planar SOS-Umu-C genotoxicity bioassay and chemical identification of genotoxins in packaging migrates, proven by microtiter plate assays SOS-Umu-C and Ames-MPF

Daniel Meyer^a, Maricel Marin-Kuan^b, Elisa Mayrhofer^c, Christian Kirchnawy^c, Emma Debon^b, Helia Latado^b, Amaury Patin^b, Benoît Schiller^b, Gertrud Morlock^a



Original Approach:

> Testing whole mixture

Modern Approach?

> Chromatographic Fractionation (HPTLC, HPLC, SPE?)



Research goes on: Biodetection: >30 years behind in development compared to instrumental chemical analysis

Still many open questions!

First Experience as part of Migratox Project:

- Many positive results when using umu-c bioassay coupled to Thinlayer Chromatography
 - Risk of false/misleading positives??
- Insufficient detection limits with normal Ames, but promising approach with Ames Sense

Modern Approach:

> Chromatographic Fractionation
(GC, HPLC, IC)

Biodetection

Original Approach:
Testing whole mixture

Modern Approach?

> Chromatographic Fractionation
(HPTLC, HPLC, SPE?)

Migratox ends, Research goes on:

- > Offer for interested companies:
 - > Membership after End of funded Project still possible:
- > Same Advantages, same conditions:
 - > Analysis of your own samples for all research supporters
 - > Results from analysis as „early warning“ and as additional support for difficult NIAS analysis
 - > Information, update, possibility to influence the direction of new developments
- > We will get in touch to discuss your personal wishes

Migratox – Final Project Meeting and Celebration

- > Funded FFG Project “Migratox” ends 2023
- > Final Project Meeting:
 - > 24. January 2024
 - > Face2Face Meeting with Networking Dinner

Wednesday, January 24th

13:00 – 17:30 CET
Final Migratox Meeting

18:00 – 20:00 CET
Networking Dinner in Vienna

Exclusively Migratox Members

Thursday, January 25th

**Symposium on „Advances in
Safety Assessment of Packaging
Materials“**

**Open Symposium with
International Guest Speakers**

FH Campus Wien: Symposium 2024

Advances in Safety Assessment of Packing Materials -
January 25th, 2024



Supporters



- > 25.01.2024 at FH Campus Vienna (Hybrid Meeting)
- > Four blocks with presentations of experts from the industry and academia
- > Poster sessions with current research topics and projects



Thank you for your attention!

Open Questions?

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