



**EUROPEAN
CARTON MAKERS
ASSOCIATION**

ECMA Technical Committee

Malta congress

**Jack Pieterse - Smurfit Kappa
Chairman ECMA Technical Committee**

**Jan Cardon
Advisor ECMA Technical Committee**

September 20th, 2019





ECMA Technical Committee

A&R Carton Robert Mayr
ECMA Jan Cardon, Hans van Schaik
Edelmann Dieter Moessner
FFI Christian Schiffers
Graphic Packaging International Rahhal Benfaida
Mayr Melnhof Packaging Heinz Traussnig
MPS/Westrock Achim Lershen, Elaine Murray
SEDA Paolo Minichini
Smurfit Kappa Jack Pieteron (chairman)
Van Genechten Packaging Michael Avemarg

Agenda

- Food safety
 - Update mineral oils
 - Council of Europe Technical guide P&B
 - CEPI/CITPA guideline
 - More to be aware of
- Recyclability of cartons

Update mineral oils

Rüdiger Helling
13-14 June 2019
Fresenius conference

STAATSMINISTERIUM
FÜR SOZIALES UND
VERBRAUCHERSCHUTZ



Freistaat
SACHSEN

Aggregated data

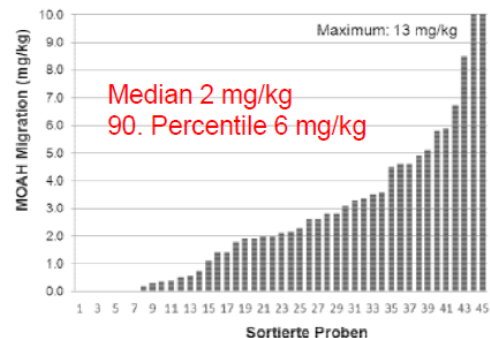
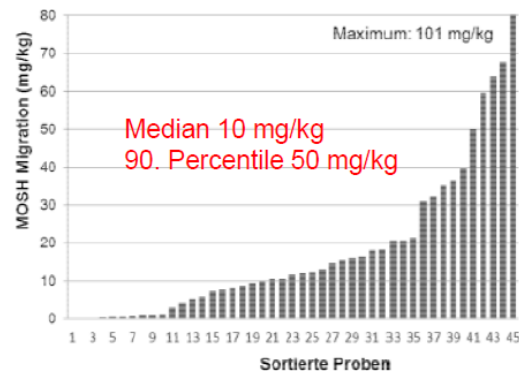
Categories a) b) c) (dry food, bakery products)

MOSH in mg/kg

| | authority | industry | All data |
|-----------------|-----------|----------|----------|
| No of data: | | | 2.165 |
| Maximum: | 385,0 | 265,0 | 385,0 |
| Median: | 0,6 | 1,2 | 1,0 |
| 75% Percentile: | 3,0 | 3,0 | 3,0 |
| 90% Percentile: | 4,9 | 6,1 | 5,5 |
| 95% Percentile: | 6,7 | 9,3 | 8,6 |

MOAH in mg/kg

| | authority | industry | All data |
|-----------------|-----------|----------|----------|
| No of data: | | | 2.164 |
| Maximum: | 29,0 | 2087,0 | 2087,0 |
| Median: | 0,0 | 0,0 | 0,0 |
| 75% Percentile: | 0,0 | 0,0 | 0,0 |
| 90% Percentile: | 0,4 | 0,5 | 0,5 |
| 95% Percentile: | 0,9 | 1,5 | 1,1 |



BMEL decision project 2010 - 2012

German mineral oil benchmark study 2016-2018

- Project between Authorities & Industry, 10474 data sets used
- Statistical assessment of MO within different food categories (all sources)

Outcome: Progress made

- 2016-2018: data left side
MOAH : 90% < 0.5mg/kg; MOSH 90% < 5.5 mg/kg
- 2010-2012: International Lab tests, data right side
MOAH: 90% <6 mg/kg: MOSH 90% < 50 mg/kg

Update mineral oils

Rüdiger Helling 13-14 June 2019
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Agreed benchmark levels

(compared to the Belgian Approach and exposure assessment of the NL)

| Food category | Benchmark level MOSH | MOSH [mg/kg] C16-C35 Belgium (action threshold) | MOSH [mg/kg] used for exposure ass. NL | Benchmark level MOAH | MOAH [mg/kg] used for exposure ass. NL |
|--|----------------------|---|--|----------------------|---|
| Vegetable oils, plant oils (tropical oils excluded) | 13 | 100 (animal and vegetable oils and fats) | 43 | < LOQ (2) | 6,5 |
| Bread, rolls, biscuit, pastry, grains and grain based products, oats, pasta and noodles, rice, breakfast cereals | 6 | 15 (grains and grain based products) | 1,8 (bread and rolls) 4,6 (pastry) 1,6 (snacks) 30,4 (pasta, noodles) 1,4 (rice) 1,2 (breakfast cereals) 5,4 (grain based prod.) | < LOQ (0,5 / 1) | 0,3 (bread and rolls) 0,7 (pastry) 0,2 (snacks) 1,2 (pasta, noodles) 0,3 (rice) 0,4 (breakfast cereals) 0,8 (grain based prod.) |
| Confectionary, chocolate | 9 | 20-30 (desserts, sugar, confectionary) | 11 (chocolate) 46 (confectionary) 3,6 (sugar) 2,7 (chocolate bunnies) 5,1 (chocolate clauses) | < LOQ (0,5 / 1) | 1,7 (chocolate) 6,9 (confectionary) 0,5 (sugar) 0,4 (chocolate bunnies) 0,6 (chocolate clauses) |

Conclusion:

NL: Assessment of contamination by all sources

- Effect of Packaging in exposure is restricted

B: Own analyses

- MOAH according D approach
- MOSH benchmark levels defined

Conclusions adopted by public authority experts & food industry
(Germany, March 2019)

French recommendation on paper and board (Update January 2019)

- No limit for mineral oil hydrocarbons: determined at a later stage.
- Polycyclic aromatic hydrocarbons (PAH): no detectable migration, i.e.:
 - Sum markers for PAH $\leq 1\mu\text{g}/\text{kg}$. (benzo[3,4]pyrene, benzo(a)anthracene, benzo(b)fluoranthene and chrysene)
 - This conclusion will probably be part of Council of Europe Technical Guide

TNO study (NL, sent to all Food Safety members ECMA): Promising developments for Mineral Oil contamination based on fibre cleaning and adsorption approach:

- Absorption: Active Carbon, ATC, functionalised Clay
- Cleaning: floatation, sCO₂, heat treatment

Plastic developments:

- Approval of 130 cleaning processes for PET (98,3-99,9%) expected by European Commission in 2020
Cleaning need more attention within P&B !

Council of Europe Technical Guide Paper & Board



Commission (DG SANTE) requested a study to assess existing FCM (Food Contact Material) legislation

Consultant Ecorys, expected outcome in 2-3 years

Council of Europe shows faster development, drafts nearly ready for public consultation:

- General resolution on Food Contact Materials
- Technical Guide on required communication throughout the supply chain
- Technical Guide on paper and board materials:
 - Scope: only paper and board substrates. Inks, adhesives, ... are out
 - Reference to existing legislation, no own list of substances
 - A list with SML (Specific Migration Limit) for certain contaminants
 - Specific requirements for the use of Recycled P&B
 - Testing effectiveness of functional barriers/adsorbents



47 European countries involved (≠ European Commission)
Initiate non binding resolutions

Often same country experts involved as in commission working groups

CEPI CITPA Guideline (April 2019)

Compliance of P&B materials for food contact – self guidance



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- Developed in Food Contact Coordination Group (CEPI/CITPA),
- Is a general guideline covering paper and board, manufacturing and converting, with a broad scope
- Important topics for our supply chain:
 - Known migrants, that can migrate to food, have to be communicated downstream the chain
 - For food additives with restrictions: the overall restriction limit should be respected (use in food + migration from food contact materials)

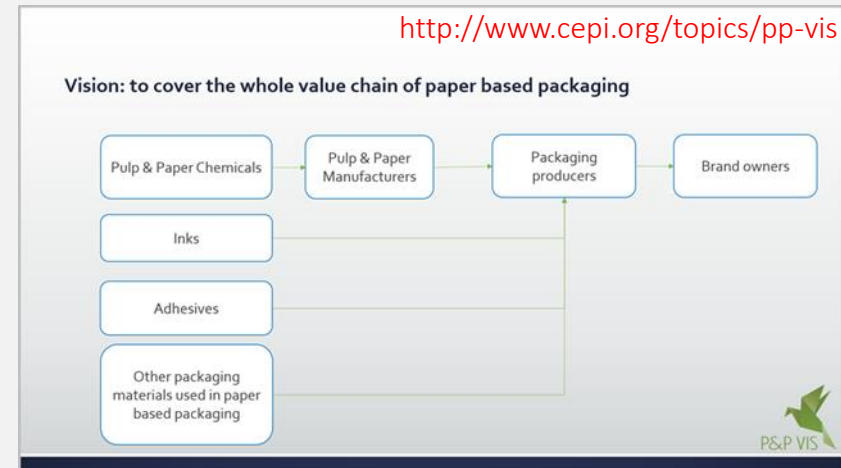


Own sector initiatives remain relevant next to CEPI/CITPA general guideline:

- Objective to facilitate and harmonize communication in supply chain



- ECMA GMP
 - Develop ECMA GMP within industry GFSI certification schemes:
 - Chapter 4 “Recommendations for GMP compliance”:
specific guidance for carton manufacturing.
 - Chapter 5 “Guidance on inks and varnishes.”
 - Updated GMP will be ready in summer 2020



More to be aware of

Commission recommendation (EU) 2019/794 – May 2019: to check certain substances on their migration into food P&B mentioned related to 3 substances

| | Food contact material to be sampled |
|-------------------------------|--|
| Primary aromatic amines (PAA) | Plastic tableware and kitchenware and printed food contact materials including paper and board . |
| Phenol | Plastic kitchenware and tableware; varnished or coated materials and; printed plastic and paper and board packaging materials . |
| Fluorinated compounds | Paper and board based materials and articles , including those used to wrap fast-food, takeaway and bakery products and microwave popcorn bags. |

More to be aware of

BEUC is European Organization of Consumers

- Carton is seen as an alternative for plastics in food packaging
- But study (Denmark, Italy, Norway, Spain, 2019) expresses concerns regarding non harmonized regulation P&B for food safety

But

- The study gives the wrong impression that plastic packaging is regulated and P&B packaging is not
- Inks and adhesives used for all packaging materials are anyway not regulated in a harmonised way

Actions taken

- ECMA members informed (update 5. Sept)
- ECMA is in discussion to change their perception (via PIJITF and direct)



The screenshot shows the BEUC website header with navigation links: About BEUC, Topics, Annual report, Successes, Press & Media, Jobs & Calls, Subscribe, Contact, and Log in. The main navigation bar includes PRIORITIES, PUBLICATIONS, BEUC NETWORK, and ACTIONS. A search bar is located on the right. The breadcrumb trail reads: Home > Publications > The EU needs rules on chemicals in coffee cups, straws and other paper food packaging, consumer test shows. The main headline is "The EU needs rules on chemicals in coffee cups, straws and other paper food packaging, consumer test shows" with a sub-headline "PRESS RELEASE - 25.07.2019". The text below states: "A new lab test shows that food packaging made of coloured paper and cardboard - such as coffee cups and straws - may contain and release chemicals originating from the inks used for printing. Paper is the second most used food packaging material after plastic. Unlike plastics, however, there are no EU rules governing paper's use as a food contact material."



ECMA TC Food Safety initiatives



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- Ongoing need to monitor legal developments in food safety a.o. DG SANTE, Council of Europe
- Remain recognised as a credible organization to provide correct information on sector and industrial processes a.o. Ecorys
- Contribute in initiatives of food safety self guidance for paper and board, a.o. CEPI/CITPA, FCCG, PIJITF
- Detect technical developments at leading food safety conferences and workshops a.o. ILSI, Fresenius
- Develop guidance documents for members a.o. GMP review
- Share information
 - via general quarterly update (broad distribution)
 - via more detailed mails to 70 "experts" in your companies

EUROPEAN CARTON MAKERS ASSOCIATION

ECMA Food Safety Update - 21 May 2019

The Voice of The Folding Carton Industry

CEPI/CITPA Food Contact Guidelines for compliance of paper & board materials and articles

Since 2015, CEPI and CITPA have been working on a food safety guidance for paper and board.

ECMA has been actively involved in the Food Contact Coordination Group, the platform in which this general guidance document has been developed. Early April the final version (56 pages) was publicly released.

Press release:
<http://www.cepi.org/taxonomy/term/18>

Download the full document [here](#).

Compared to the previously existing "Industry Guid Comprehensive and covers both paper manufacturing operations.

The sky seems to be clearing in the mineral oil debate

In recent months a number of new publications were made available. FoodInfoEurope came with their version of the "Toolbox for preventing the transfer of colored mineral oil hydrocarbons into food". The Joint Research Centre published a "Guidance Report on sampling, analysis and data reporting for the monitoring of mineral oil hydrocarbons in food and food contact material", and the Dutch Research Institute TNO released a study on different technologies for the elimination or reduction of mineral oils.

Press release in the progress made in addressing the core safety issues related to mineral oils.

In 2017 CONCAWE, the Environmental Science platform from the European Refining Industry, started to communicate in a more open way, explaining all mineral oils delivered in Europe are well refined and do not contain the polycyclic aromatic hydrocarbons (PAHs) which are recognized as the most questioned mineral oil factors. A test is performed to verify the refining. In recent workshops and meetings this statement seems now well accepted from the authorized side.

The conclusion is that the most questioned mineral oil factors are clearly not present in refined mineral oils and additives for food contact and non-food contact and are thus from those sources clearly not present in recycled paper and board of polymeric compounds (PAHs) which are found in food. They come from other sources (e.g. from exhaust gases or from the use of unrefined bathing oils for lake baths).

For the other less questioned mineral oil factors (MOHs and MOAHs) 1-2 items from a.o. additional the good news comes from the Belgian and Dutch authorities.

In view of the ongoing EU Mineral Oil monitoring program, MOHs and MOAHs were found in food categories such as cakes and sweet biscuits, cereal products, fats and oils and the non-alcoholic beverages (softly).

The authorities performed however exposure assessments and the outcome is

ECMA Food Contact Network Update

EUROPEAN CARTON MAKERS ASSOCIATION

Commission Recommendation (EU) 2019/794

The Commission issued mid May a new recommendation to the Member States on a coordinated control plan for materials and articles intended to come into contact with food.

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0794>

The general objective of the control plan is to establish the prevalence of substance migration from food contact materials into food or the presence of substances in the food contact material. The recommendation mentions specifically paper and board as a food contact material to be sampled for certain substances:

| Substance | Food contact material to be sampled |
|-------------------------------|--|
| Primary aromatic amines (PAA) | Plastic tableware and kitchenware and printed food contact materials including paper and board. |
| Phenol | Plastic kitchenware and tableware, varnished or coated materials and printed plastic and paper and board packaging materials. |
| Fluorinated compounds | Paper and board based materials and articles, including those used to wrap fast-food, takeaway and bakery products and microwave popcorn bags. |

Other substances included in the control plan for which paper and board is not specifically mentioned: Formaldehyde and Hexamine, Bisphenols including BPA and BPS, Phthalates and non-phthalate plasticisers, metals and the overall migration.

The controls should take place from 1 June to 31 December 2019 with 2022 2020.

Perfluoro compounds in food contact materials

In a Council of Europe meeting, the Dutch Institute for Health and the outcome of the study on the "Plan and possibility of substances (PFAS) <https://www.viv.nl/sites/default/files/2019-05/plan-and-possibility-of-substances-pfas>

Within this large group, certain substances are present on the Union Lists of Member States, others not.

The report mentions how based on literature and on experimental data, and board, substantial migration of perfluorocarboxylic acids (PFCA) is not allowed to be used.

According to RfM not allowed substances may come from impurities (materials) or from the degradation of allowed substances.

In the ECMA Technical Committee (2016) it was once more stated the due to use of ethanol in the extraction process. Certain suppliers sample compounds should not be used in presence of alcoholic foods.

| Substance | Migration | Limit |
|-----------|-----------|-------|
| PFCA | 0.1 | 0.1 |
| PFOA | 0.1 | 0.1 |
| PFOS | 0.1 | 0.1 |
| PFNA | 0.1 | 0.1 |
| PFDA | 0.1 | 0.1 |
| PFUnA | 0.1 | 0.1 |
| PFTA | 0.1 | 0.1 |
| PFTA | 0.1 | 0.1 |
| PFTA | 0.1 | 0.1 |
| PFTA | 0.1 | 0.1 |
| PFTA | 0.1 | 0.1 |

The Danish Food Administration announced recently a national list of

CEPI/CITPA guideline on the recyclability of paper and board packaging (Draft 6)

Early drafts

- Give preference to alternatives to UV varnishes
- Give preference to alternatives to hot-melt glue



Present in draft 6

- Statement on UV out
- Hotmelt discussion ongoing

Still difficult : Assimilation of all “composite packaging” with liquid cartons !

Also the cartons with a one sided thin PE coating.

Specialised paper recycling mills have specific processes in place to handle more complex paper packaging products.

It is crucial, that these complex paper packaging products are channelled through the right collection schemes to the paper recycling mills that can actually recycle them. ...

Recyclability of cartons

ECMA believes:

- It is not true that all folding cartons with a coating are not-recyclable &
- Detect innovations from new technology: e.g. surface treatment & new biobased barriers

ECMA TC meeting at CTP Grenoble June '19



Source : Fabienne Vercelli (CTP) 25/06/2019

Barrier Solutions offered by the CTP

| Solutions | | Water | Grease | Water vapour | Oxygen | Contaminants Aromas | Alternatives to |
|-----------|--|-------|--------|--------------|--------|---------------------|---|
| Today | Chromatogeny | H | | | | | Wax, PE... |
| | MFC wet lamination | L | H | L | H | H | Fluorinated resins |
| | Barrier coating | H | H | M | M | M | Wax, fluorinated resins, PA |
| | PVOH coating + Chromatogeny | M | H | M | H | H | Wax, fluorinated resins, PET |
| | MFC wet lamination + Chromatogeny | M | H | M | H | H | Wax, fluorinated resins, PA, PET |
| Tomorrow | MFC wet lamination + Chromatogeny or + coating | H | H | H | H | H | Wax, fluorinated resins, PA, PET, PE, PET, PP, PVC... |

L : Low
M : Medium
H : High



MFC : Micro Fibrillated cellulose
Chromatogeny™ : Brings hydrophobicity to hydrophilic reactive substrates.

Needs in area of sustainability

Resources and new structures are required for:

- Direct involvement in the European Sustainability platforms:
DG Environment, industry platforms, quality congresses
- Circular Economy Package & the climate debate
Monitoring and involvement in studies
- Recyclability
Involvement in platforms where test procedures are developed
- Open dialogue with actors in the carton supply chain on
Eco-design guidelines





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Thank you

