

# WELCOME



Chemisches und  
Veterinäruntersuchungsamt  
Stuttgart



**FOOD SAFTY**

**ANIMAL HEALTH**

**CONSUMER PROTECTION**



Baden-Württemberg

# Analytical challenges in FCM testing

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# What can be challenging?

No material  
specific  
legal basis  
e.g. EU  
regulations

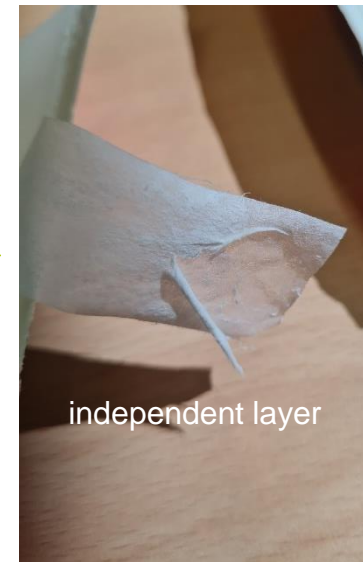
Different  
mix of  
materials

Difficulties  
with  
classification

Different mix of materials

# Paper vs. paper with plastics

- Regulation (EG) No. 1935/2004
- Technical Guideline of paper and board used in food contact materials and articles (2021, CoE) in Annex I. referring to
- BfR-Recommendations
  - XXXVI - general
  - XXXVI/1 – hot filter paper
  - XXXVI/2 – baking paper
- paper with inner layer made of plastic:
  - Lacquer or independent layer?



# Paper vs. paper with plastics

Lacquer / coatings

plastic layer

excluded in Art. 2 No. 3 of  
Reg. (EU) 10/2011

fulfil Reg. (EU) 10/2011



Cold / hot water extract  
(DIN EN 645 & DIN EN 647)

Migration testing  
conditions after Reg.  
10/2011



# Paper vs. paper with plastics

## Measurement of chloropropanols

### Wet strengthening agent in paper

Substances not specifically listed in Annex II of CoE  
Technical Guideline

but Annex I. is referring to:

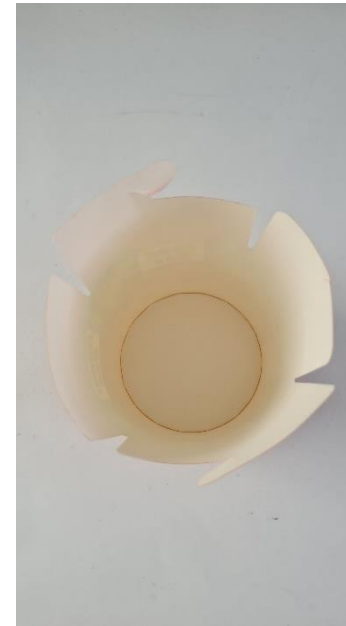
BfR Recommendation XXXVI



3-MCPD: 12 µg/L cold water extract

1,3-DCP: not detectable (2 µg/L)

For hot use conditions e.g. baking paper → use also cold  
water extract, because of instability and volatility



# Paper vs. paper with plastics

## Measurement of chloropropanols

Wet strengthening agent in paper

Results:

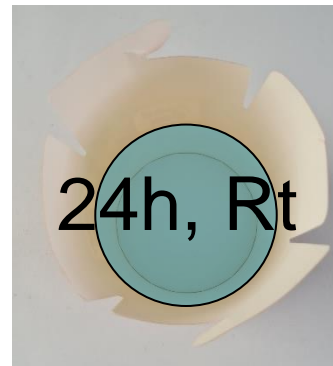


Cold water extract:

28.1 µg/L 1,3-DCP

36.8 µg/L 3-MCPD

failed

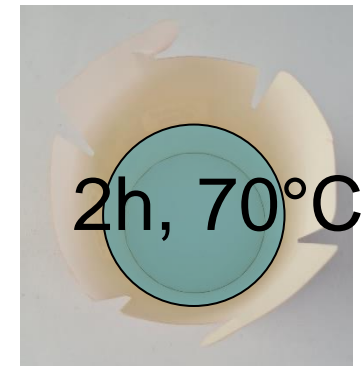


Migration: 250 ml cold water

3.29 µg/L 1,3-DCP

<LOQ 3-MCPD

failed



Migration according to

Reg. 10/2011:

0.83 µg/L 1,3-DCP

<LOQ 3-MCPD

pass

→ Migration conditions for plastic not practical for contaminant from paper



# Lacquer or independent layer?

- For paper easy to find out
- coated metals difficult to analyse  
→ no microtome cut possible



after 1st migration



after 2nd migration



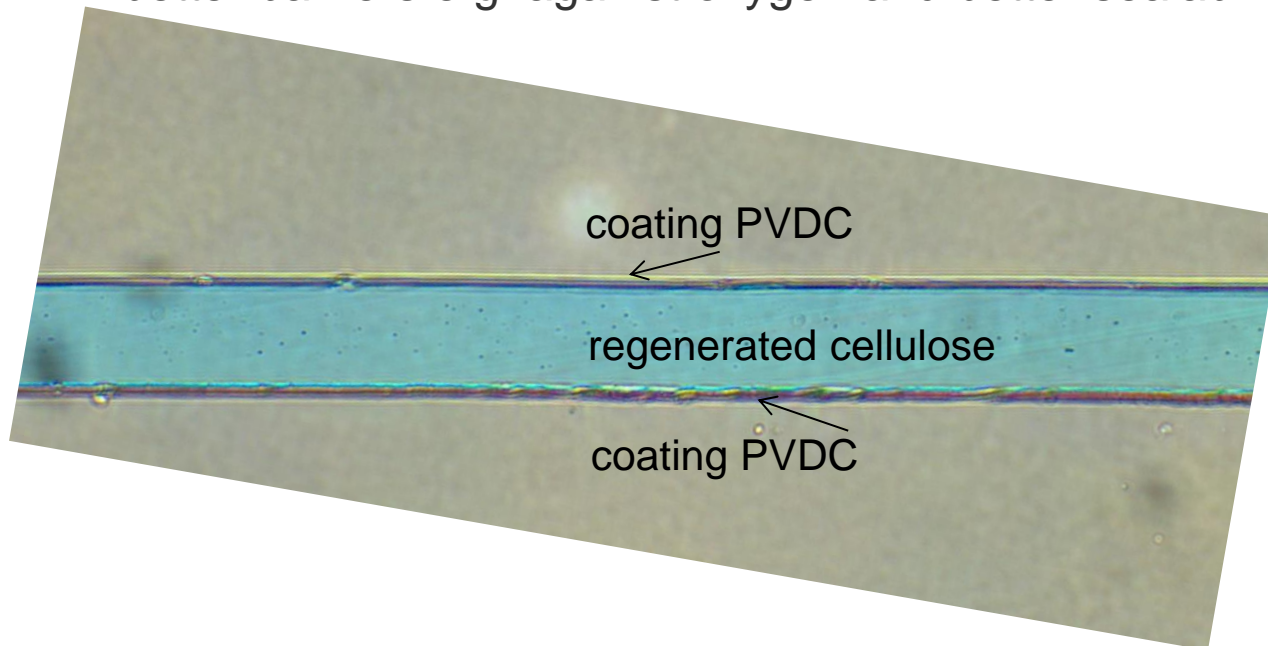
after 3rd migration



- it seems to be an independent layer
- if it were not destroyed then it would have been difficult to analyse what it is
- It is important to know for the classification and assessment

# FCM made of regenerated cellulose

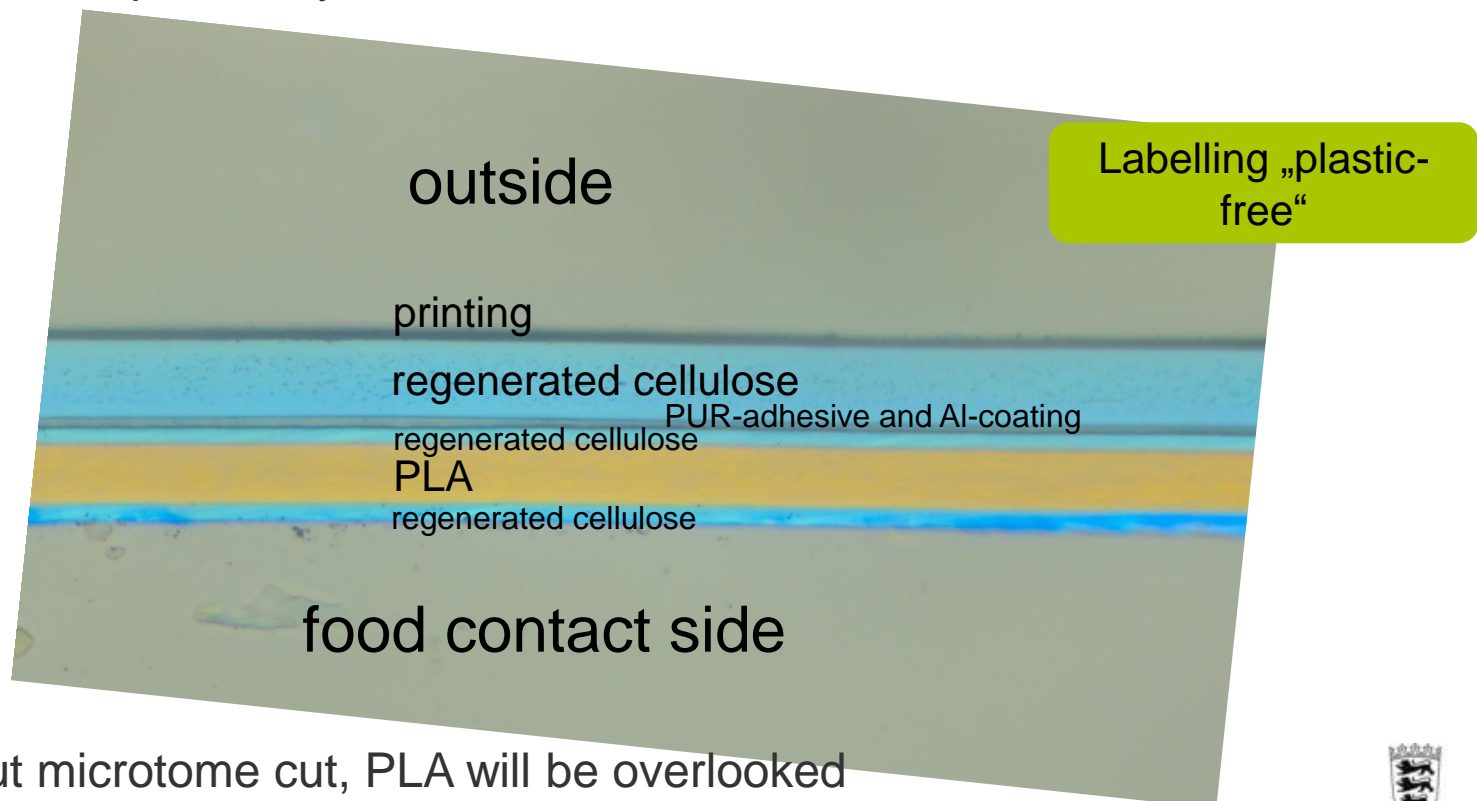
- Directive 2007/42/EC:
    - regenerated cellulose >72% (without coatings or lacquers)
    - coating with plastics according to Regulation (EU) No. 10/2011 allowed
- better barriers e.g. against oxygen and better sealability



Beilstein test positive

# FCM made of regenerated cellulose

- More and more complex packaging with several layers of regenerated cellulose and plastic layers



→ Without microtome cut, PLA will be overlooked

# Difficulties with classification

# Kitchenware made of metal

Barbecue plate with „ready to use“ patina  
How to classify a patina?

CM/Res (2013)/9 for metals and alloys migration conditions:  
0.5% citric acid, 30 min, 100°C, 3rd migration

- patina was destroyed after 1st migration
- measurement up to 3rd migration without new patina build up
- Release of arsenic, chromium, iron and manganese above the value according to CM/Res(2013)/9 (3<sup>rd</sup> migration)

*"Do not cook acidic foods such as tomatoes, vinegar, citrus fruits or wine after you have just resealed your griddle".*



1st migration    2nd migration    3rd migration

→ How to implement in the laboratory? Can not build up a new patina constantly



No material specific legal basis  
only Regulation (EG) 1935/2004



# Labelling of cooking items

Camping items made of aluminum:

Corresponds the labelling recommendations according to Technical Guideline Metals and Alloys (2<sup>nd</sup> Edition), but in special case:

GB - : "Read before use: Do not use this product to store or prepare highly acidic or highly salted foods such as lemon, fruit tea, apple sauce, rhubarb, tomato puree, vinegar, broth, salted herring or pickled gherkins etc." • FR - Lire avant utilisation: ne pas utiliser ce produit pour conserver ou préparer des plats extrêmement acides ou salés comme du citron, des jus de fruit, des compotes de pommes, rhubarbe, purée de tomates, vinaigre, bouillon, des harengs salés ou concombre au vinaigre etc. • DE - Verbraucherinformation: Nicht zum Aufbewahren oder Zubereiten von stark säure- oder salzhaltigen Lebensmitteln wie Zitronen- oder Früchtetees, Apfelmus, Rhabarber, Tomatenpüree, Sauerkraut, Salzhering, Salzgurken etc. verwenden • NL - : Lezen voor gebruik: gebruik dit product niet om zure of sterk gezoute voedingsmiddelen zoals citroen, fruit thee, appelmoes, rabarber, tomaten puree, azijn, bouillon, zoute haring, augurken enz. te prepareren of op te slaan. • IT - Leggere prima dell'uso: non usare questo prodotto per conservare o preparare alimenti altamente acidi o fortemente salati come il limone, tè alla frutta, succo di mela, rabarbaro, passata di pomodoro, aceto, brodo, aringhe sotto sale o in salamoia, cetriolini, ecc •



- No switching to other cooking utensils possible while camping
- Can I avoid cooking acidic or salty foods while camping?
- Do I remember this label (label is printed on cardboard packaging)?
- Do I have to accept the release of aluminum, while camping?



- Is aluminum even suitable for such a purpose?
- In Germany recommendation of ALS that it is not usable for that special purpose

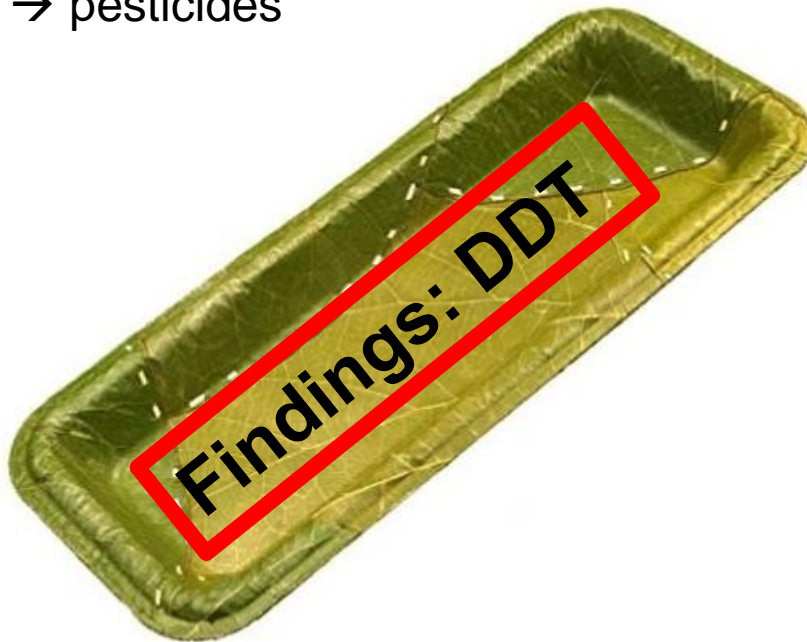
# No paper, no plastic, all natural?

## Labelling:

- free of chemicals, adhesives, and plastic
- design, production and sales in Germany
- treated with sun, heat and water only
- handmade
- made of 100% leaves

## What should we analyse?

→ pesticides





# Thank you for your attention!

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