

Prioritizing and Grouping Food Contact Chemicals: From Chaos to Clarity

Welcome



Food
Packaging
Forum

07/09/2026



Housekeeping

- Recording will be shared publicly
- Please use the Zoom Q&A feature to submit questions.
- Questions will be answered at the very end of the webinar.



Who are we?

- Non-profit research organization based in Zurich, Switzerland
- Independent, science-based, and peer-reviewed
- We work in the interest of the public to protect human and environmental health



Useful vocabulary

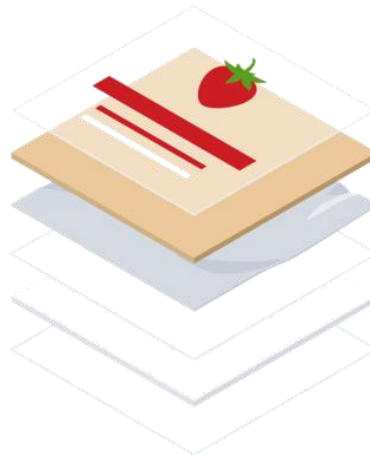
food contact article (FCA):

- yoghurt cup



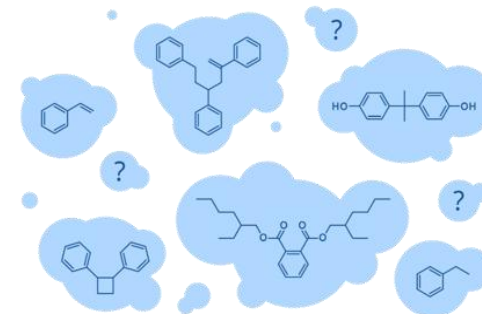
food contact materials (FCMs):

- plastic(s)
- aluminium
- coating
- adhesives
- printing inks
- ...



food contact chemicals (FCCs):

- monomers
- polymers
- oligomers
- additives
- pigments
- metals
- impurities
- reaction by-products
- degradation products
- ...





Why are we here today?

- **Dr. Helene Wiesinger:** What is grouping and how can it be used to avoid regrettable substitution?
- **Albert Anguera Sempere:** How can our new free tool help avoid regrettable substitutions?
- **Dr. Jane Muncke:** Where do we go from here?
- **Q&A**

Towards safer food contact chemicals: Avoiding regrettable substitution through grouping



Dr. Helene Wiesinger
Scientific Officer
Food Packaging Forum

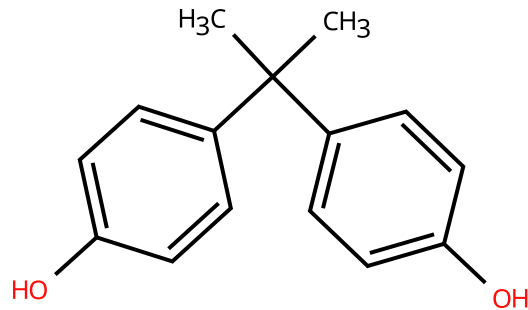




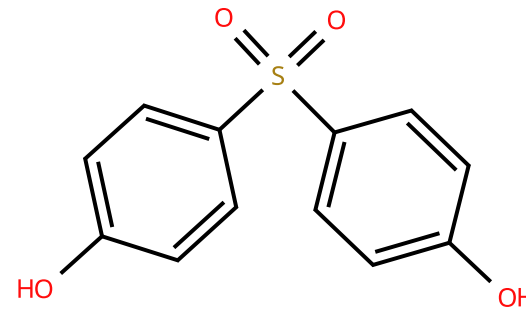
What is the problem?

- Bisphenol A, a **known hazardous** chemical,
...

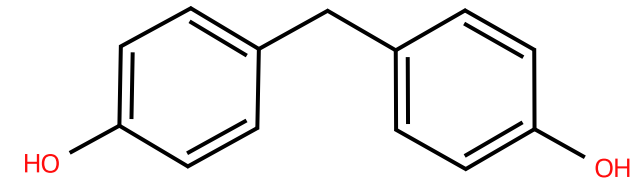
... got replaced with **structural analogues**,
such as Bisphenol S and Bisphenol F, that were
less well studied.



Bisphenol A



Bisphenol S



Bisphenol F

(Spoiler: they were at least as hazardous)



What is regrettable substitution?

“Regrettable Substitutions” is when a known hazardous chemical is replaced by a chemical with unknown or unforeseen hazards

This has happened among several groups of industrial chemicals...

ORIGINAL SUBSTANCE	REPLACED WITH
Bisphenol A (BPA)	Other Bisphenols (BPS, BPF)
Long-chain PFASs (PFOA, PFOS)	Other PFASs (GenX, short-chain PFASs)
DEHP	Other <i>ortho</i> -phthalates (DiNP, DiDP)
....	

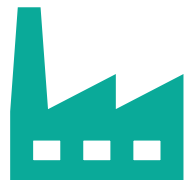
... can we manage these chemicals as **groups**?



What does this mean for food contact chemicals?

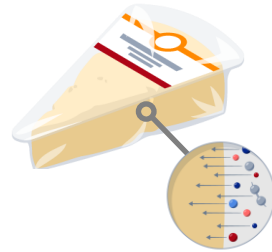
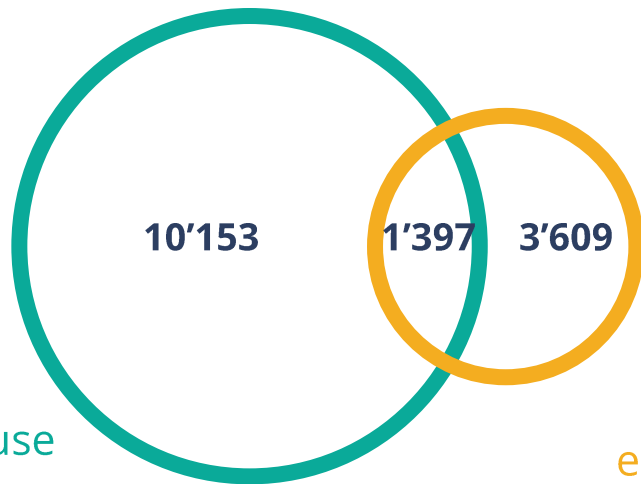
More than **15'000 chemicals** are known food contact chemicals

More than **1200 are known hazardous** chemicals



FCCdb

intentional use



FCCmigex
empirical evidence

More than **13'000 (87%)** lack data



FCCprio List

1,222 chemicals



Tier 1 (94)



Biomonitoring programs
Migration evidence

Tier 2 (264)



Migration evidence

Tier 3 (224)



Presence in material

Tier 4 (640)

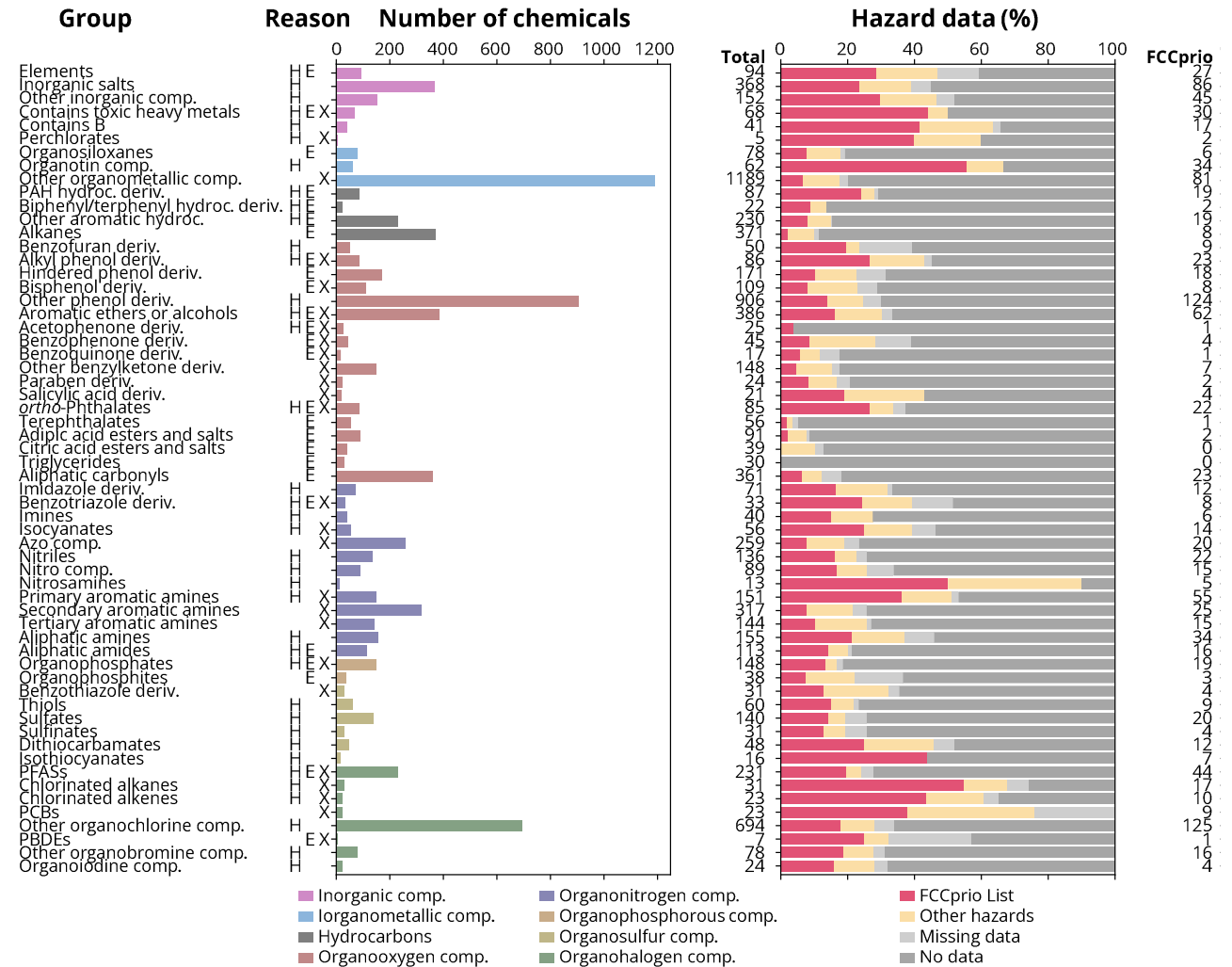


Intentional use



Priority groups

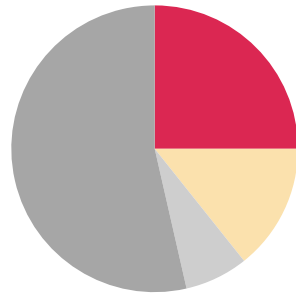
- **38 priority groups:**
e.g., PFASs, ortho-phthalates, isocyanates, acetophenones, organophosphates
- More than **4200 FCCs** are potentially hazardous





Isocyanates

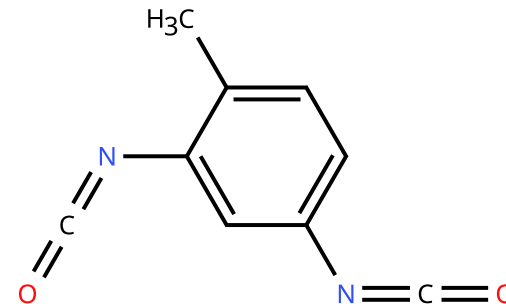
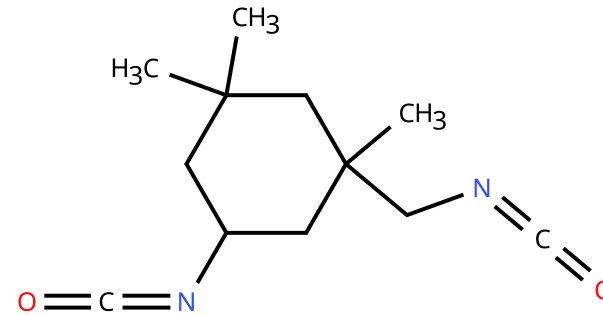
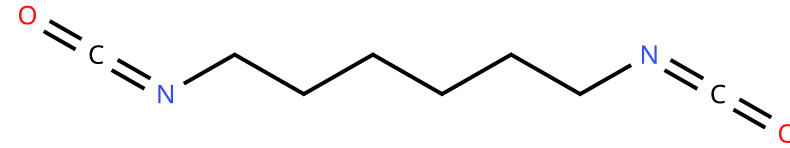
56 FCCs



- Hazardous
- Other hazards
- Missing data
- No data

Relevance as FCCs

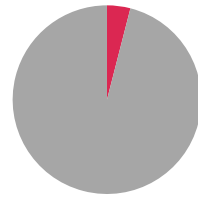
- Monomers in adhesives and polyurethanes



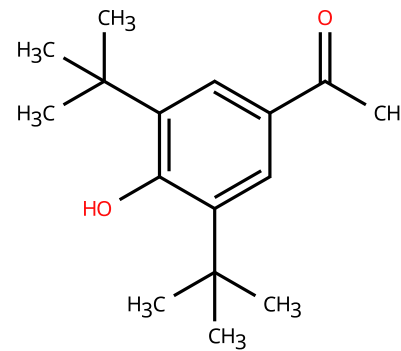
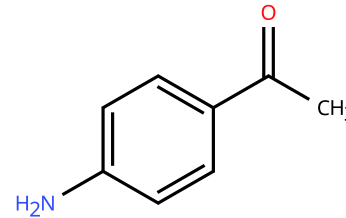
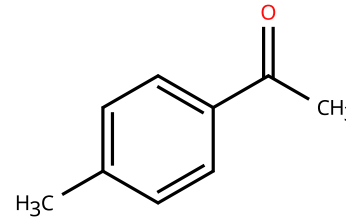


Acetophenone derivatives

25 FCCs



■ Hazardous
■ No data



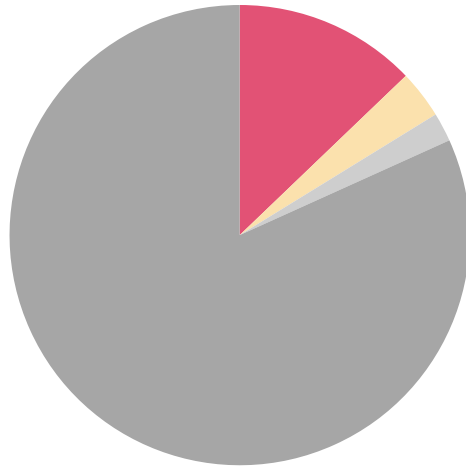
Relevance as FCCs

- Photoinitiators in printing inks
- Degradation products of antioxidants



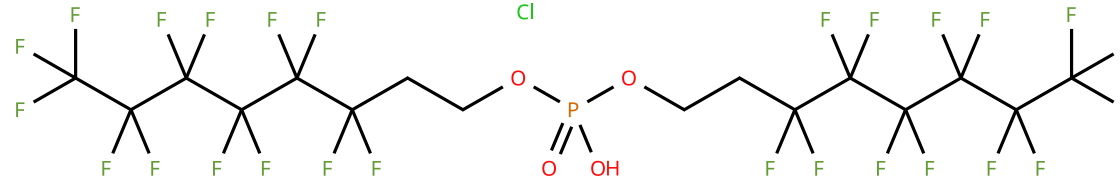
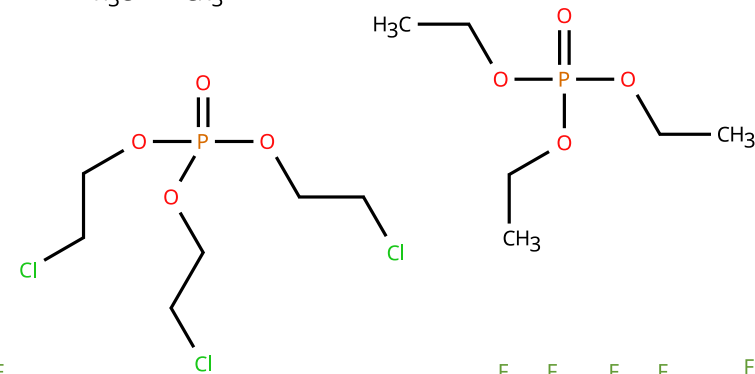
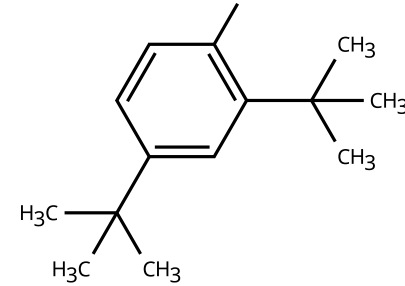
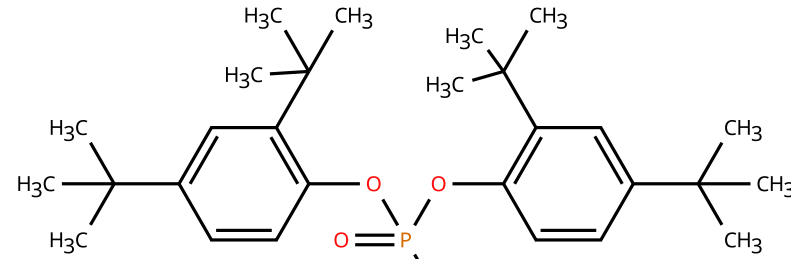


148 FCCs



Relevance as FCCs

- Degradation products of antioxidants
- Alternative plasticizers
- PFASs subclass > Coatings
- (flame retardants, pesticides)





Key messages

Major data gaps exist for majority of food contact chemicals

- >1'200 are hazardous
- >13'000 (87%) lack data

Grouping chemicals can prevent regrettable substitutions

- 38 priority groups to address - FCCgroup helps identify them in any list
- Isocyanates, acetophenones, organophosphates, alkyl phenols, the usual suspects (incl., PFASs, phthalates, ..), and many more
- >4'200 are potentially hazardous (because they are structurally similar)

Limitation: focus on known concerns

- “known” data-rich chemicals & groups

Use the Application



Identify and classify Food Contact Chemicals using FPF's integrated databases and structural analysis

Analysis

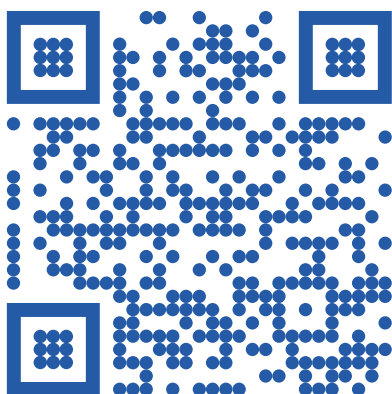
How to use



Want to know more

... check the peer-reviewed publication

... ask in the chat



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Article

Prioritizing and Grouping Food Contact Chemicals: From Chaos to Clarity

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Cite This: <https://doi.org/10.1021/acs.est.5c15186>

Read Online

Introducing the FCCgroup app:

An automated tool to identify chemical groups



Albert Anguera Sempere
Data Scientist
Food Packaging Forum

Needs to achieve safer and more sustainable food contact chemicals



Dr. Jane Muncke
Managing Director
Food Packaging Forum

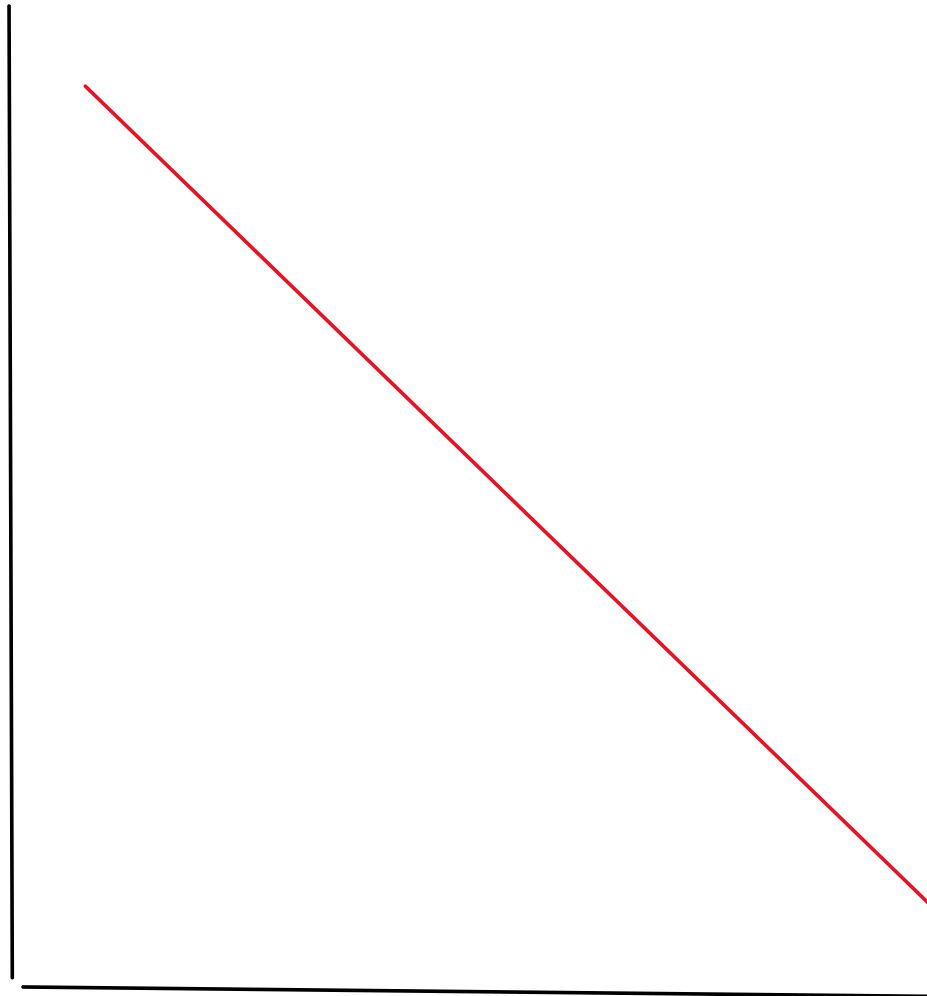


Approaches to manage the risks of FCCs

- Apply a mixture allocation factor in the risk assessment of an FCC
 - migrating chemicals known, hazard properties known
- Group chemicals by their structures to estimate hazard properties
 - “read across”, need chemical identity of migrating chemicals
- Effect-directed analysis: use bioassays to assess whole migrate toxicity, identify chemicals that drive toxicity
 - Select assays that are relevant for ALL relevant human health impacts
- Enable the use of materials that are INERT
 - Requires novel approaches into the assessment of INERTNESS



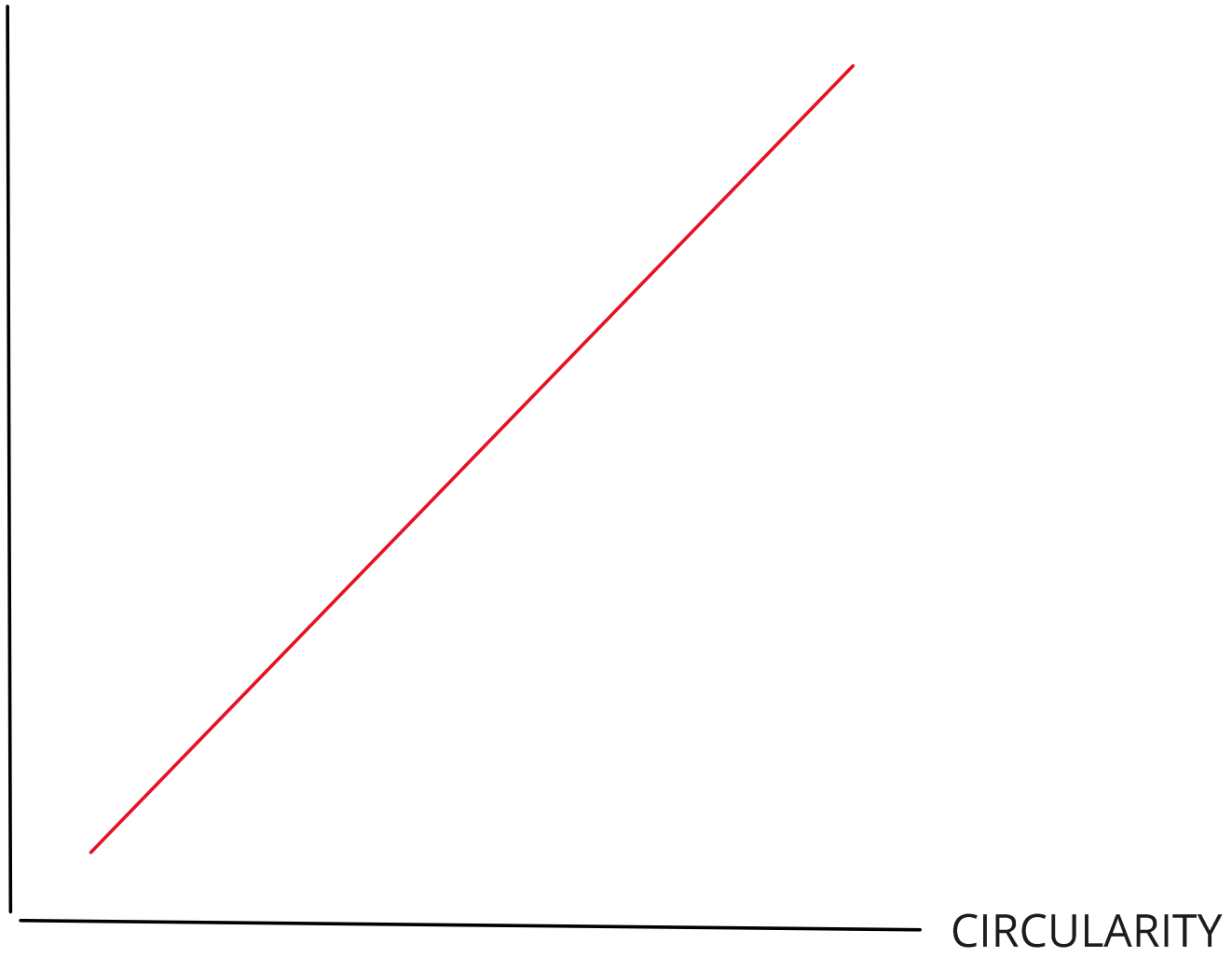
INERTNESS



INFORMATION
REQUIREMENT FOR FCC
RISK ASSESSMENT



INERTNESS





Helpful resources

FCCgroup



An automated chemical grouping application to avoid regrettable substitution

FCCprio List



A prioritized list of food contact chemicals to phase out and avoid based on their hazard properties and exposure potential

Chemical safety and inertness



A fact sheet explaining why some materials are inherently safer for human health than others

FPF chatbot



More questions? Just ask the chatbot on our website. It can help you search across FPF's resources



Q&A session



Dr. Helene Wiesinger
Scientific Officer
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Albert Anguera Sempere
Data Scientist
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Dr. Jane Muncke
Managing Director
Food Packaging Forum

Thank you for attending



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