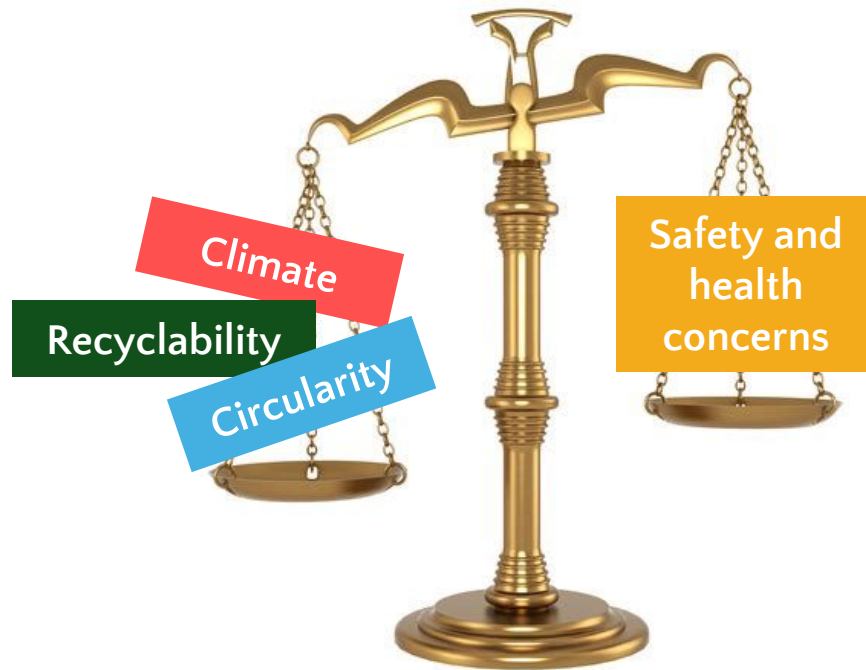


SAFE TO REUSE: HEALTH & SAFETY AS COMPETITIVE ADVANTAGE FOR REUSABLE PACKAGING

Dr. Etienne Cabane



#1 Foodware and food packaging is not just a waste issue; it is also a chemical exposure issue



Chemical safety is often absent from circular economy discussions

⇒ “Safe Circularity”?

UP^Δ_S

Understanding Packaging
Scorecard

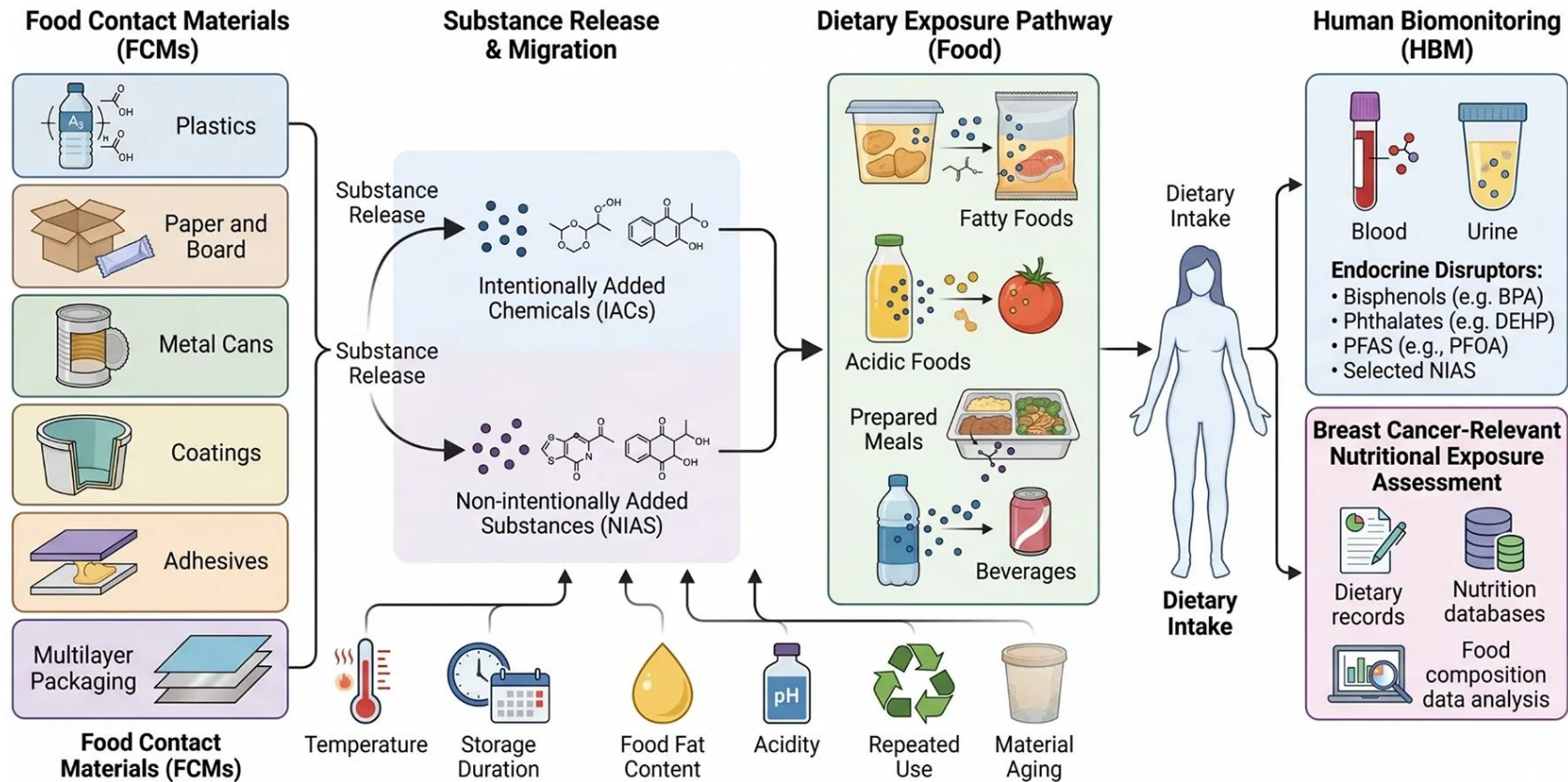
<https://live.upscorecard.org/>

Europe Recoverability Averages ☐

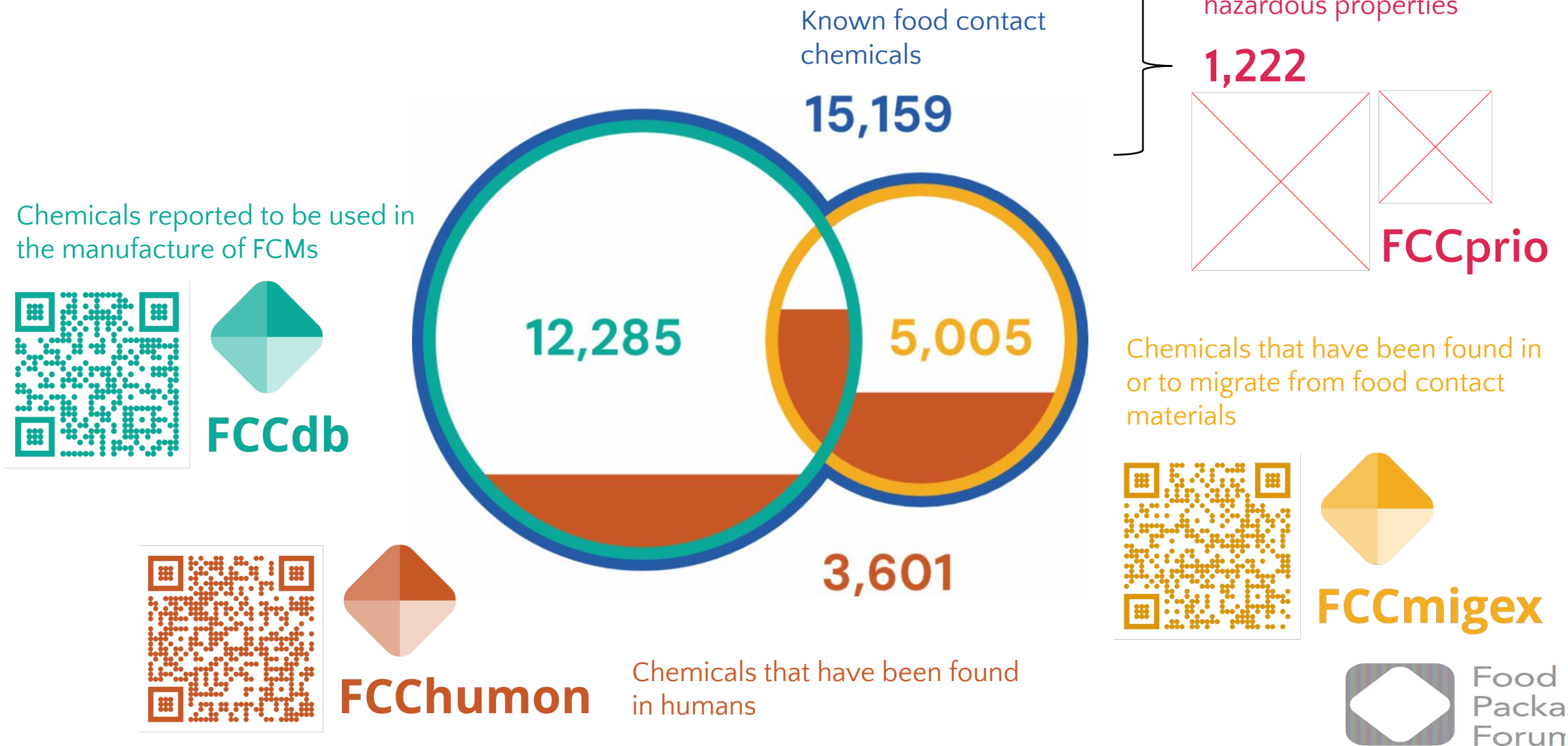
Custom Composting and Recycling

Product	Climate ...	Water use ...	Plastic Pollution ...	Sustainable Sourcing ...	Recoverability ...	Chemicals of Concern ...	Summary Score ...
glass cup Reused 30 times 33% recycled content	67	65	100	100	100	34	78
paper cup, PE lined 35% recycled content	62	80	94	51	1	9	49
PET cup 10% recycled content	44	74	17	26	1	9	28

#2 Food packaging is a major source of human exposure to food contact chemicals (FCCs)



#2 The universe of FCCs



#3 Current regulatory frameworks still have important gaps

Food contact articles are regulated, and regulations are not enough to protect human health:

- Regulations manage known risks, not unknowns
- Regulations fail to capture real-world conditions
- Regulations often lag behind state of science

#4 Reuse is a unique opportunity to change things



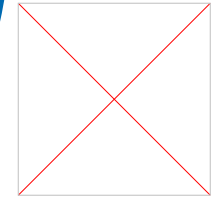
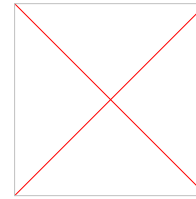
The transition to reuse allows us to rethink:

- ☐ material choices
- ☐ chemical transparency
- ☐ packaging design
- ☐ safety monitoring
- ☐ replacement criteria

#5 Reuse is not inherently safer

Reuse introduces new quest

- repeated food contact
- mechanical wear and abrasion
- repeated washing cycles
- detergents and disinfectants
- ageing over time
- possible contamination from previous use



#6 Therefore, safety must be demonstrated

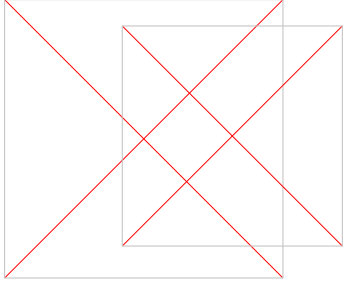
Single use – testing focuses on new materials, and one use of the food contact article



Reusables – what needs to be assessed:

- repeated use
- real-world washing
- wear and tear
- ageing
- chemical migration over time

#7 What do we need to build trust?



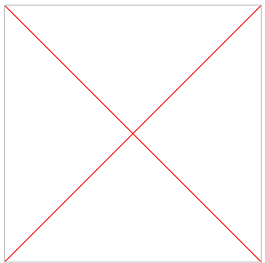
Transparency

Know what chemicals are present.

Better materials

Prioritize inert, durable and chemically simple materials

	Glass	Metal	Ceramic	Plastic
High inertness under use conditions	✓	✓	✓	!
Low chemical complexity of the material	✓	✓	✓	!
Low chemical interactions with food & detergent	✓	✓	✓	!



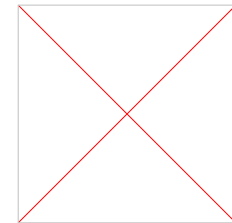
Better testing

- Test in realistic use conditions
- Expand scope of toxicity testing to account for all endpoints
- Test all migrating substances (including NIAS)
- Address mixture effects
- Move from single-substance risk assessment to hazard-based or group-based approaches

Standards & verification

No common definition of safe reuse
=> Common protocols and performance criteria.

- How many cycles?
- When should packaging be replaced?
- What performance should be



#8 Safe reuse as a competitive advantage

- Reuse has the potential to deliver both environmental and health benefits
- But those benefits will not happen automatically
- They will depend on our ability to design systems that are transparent, testable, and demonstrably safe over time



<https://www.imb.org>