

Chemical safety of food contact materials in the circular economy:

Introduction

Dr. Jane Muncke

Food Packaging Forum Foundation, Zurich

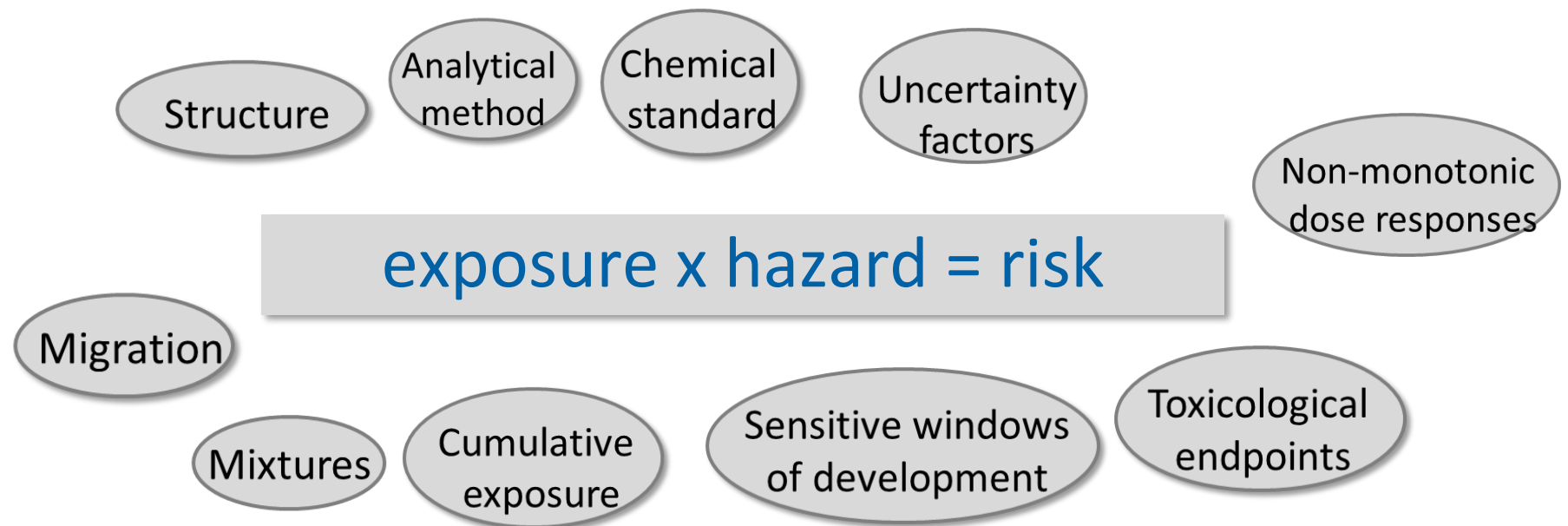
www.foodpackagingforum.org

jane.muncke@fp-forum.org



Chemicals and food contact materials

- More than 6000 chemicals used in the manufacture of food contact materials (FCMs) and food contact articles (FCAs) (Oldring et al. 2014: FACET database)
- 175 chemicals of concern listed in FCM inventories (Geueke et al. 2014)
- Challenges in the risk assessment of chemicals migrating from FCMs and FCAs



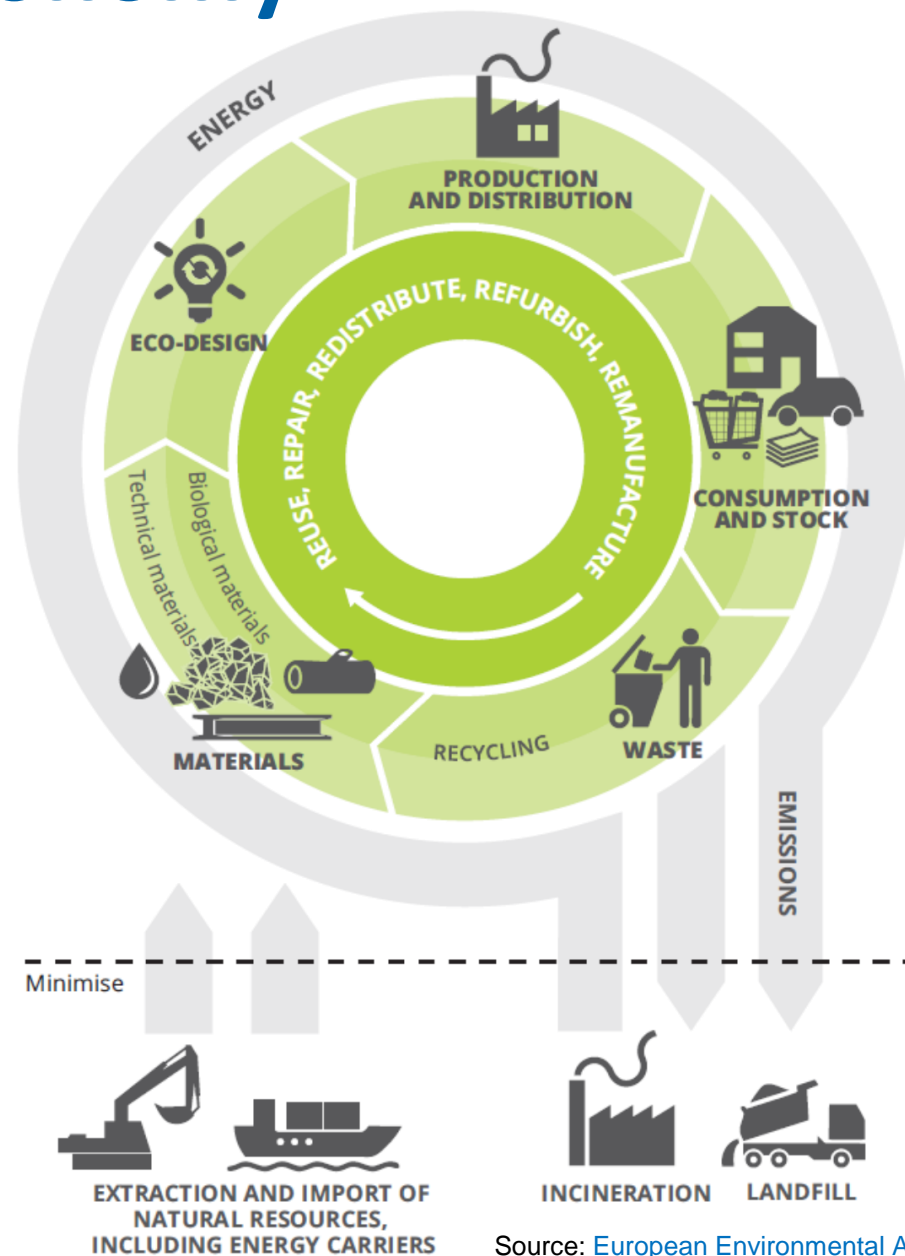
Oldring, P. K. T., et al. (2014). "Development of a new modelling tool (FACET) to assess exposure to chemical migrants from food packaging." Food Additives and Contaminants Part A 31(3): 444-465.

Geueke, B., et al. (2014). "Food contact substances and chemicals of concern: a comparison of inventories." Food Additives & Contaminants: Part A 31(8): 1438-1450.

Birgit Geueke (2015). FPF workshop "Food packaging and chemical safety today, overview of scientific challenges for tomorrow."

http://www.foodpackagingforum.org/wp-content/uploads/2015/05/BirgitGeueke_FPF-Workshop_Oct2015.pdf

Circular economy



Source: [European Environmental Agency](#)

Roots of the circular economy concept

- 1972 [Limits to growth](#) (Club of Rome)
- 1981 [The product-life factor](#) (Walter R. Stahel)
- 1987 [Our common future](#) (UN)
- 1989 [Economics of natural resources and the environment](#) (Pearce and Turner)
- 1998 [Twelve principles of green chemistry](#) (Anastas and Warner)
- 2002 [Cradle to cradle](#) (Braungart and McDonnough)
- 2009 [Planetary boundaries](#) (Stockholm Resilience Centre)
- 2011 [A resource-efficient Europe – flagship initiative under the Europe 2020 strategy](#) (EC)
- 2012 [Towards the circular economy](#) (Ellen MacArthur Foundation)
- 2015 [EU circular economy strategy](#) (EC)

What changes in the circular economy?

- Decoupling economic growth from resource consumption
- Collaborative consumption: access rather than ownership
- Repair, reuse, re-manufacture
- Increased recycling rates
- Non-toxic material cycles

European Environmental Agency

<https://www.theguardian.com/sustainable-business/10-things-need-to-know-circular-economy>



Circular economy challenges for the chemical safety of food contact materials

Recycling

- separating food-grade from non-food-grade materials
- recycling processes that remove all hazardous substances
- changes to material's chemical composition due to recycling

Reusing

- educating people about food-grade vs non-food grade materials

Chemical safety assessment

- exposure/risk vs. hazard-based approach