Chemical mixtures: Moving from science to regulation

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Workshop: Advancing the Assessment of Chemical Mixtures and their Risks for Human Health and the Environment
Contents

1. Introduction to CHEM Trust
2. Mixtures exist
3. What are we trying to achieve?
4. Toxicity & time
5. Two example issues
6. Policy history
7. Ideas for policy action
1. About CHEM Trust

• UK registered charity working at EU, UK & Global levels to protect humans & wildlife from harmful chemicals

• Working with scientists, technical processes and decision makers, in partnership with other civil society groups

• Focus is identification & action on hormone disrupting chemicals, mainly at EU level

• See our blog & twitter for more: www.chemtrust.org @chemtrust
2. Mixtures exist

• We are all exposed to them
• There are additive and other effects
• We need to be better protected
• It’s not easy
3. What are we trying to achieve?

- **Good ecological status**
  - See Water Framework Directive

- **What about for people?**
  - No equivalent in legislation
4. Toxicity and time

![Graph showing the relationship between time and no adverse effect level. The graph compares real no adverse effect level with estimated exposure.](image-url)
Estimating toxicity

• Currently Estimated Risk (CER) = currently estimated hazard x currently estimated exposure
  – True risk is hard to determine (or impossible?)

• CER changes over time, normally increasing, often by orders of magnitude
  – (see “Late Lessons from Early Warnings” EEA reports)

• Important point:
  – no data ≠ no hazard (actually = ignorance)
  – If no data, we should estimate the hazard

• Exposure to mixtures adds to the challenge
5. e.g. Developmental neurotoxicants

“No Brainer” report on DNT chemicals:

- Well-established DNT
  - E.g. Lead, PCBs
- Suspected DNT
  - E.g. BPA, Phthalates, PDBEs
- Initial evidence of DNT
  - PFCs, other Brominated Flame Retardants, other bisphenols
- A large no. of chemicals where we don’t know
  - Currently Estimated Toxicity = 0
- http://www.chemtrust.org/brain
5. e.g. Bisphenols & grouping

• “Toxic Soup” report, on regrettable substitution of one bisphenol by another
  – There’s a long list to get through, unless regulators change their approach

• One example of why a grouping approach needs to become routine
  – In restrictions etc

www.chemtrust.org/toxicssoup
6. A brief history of mixture policy

2009: Council conclusions “Combination effects of chemicals”

2010: Report “State of the art on mixture toxicity”

2012: Commission Communication on “The combination effects of chemicals”

2013: 7th Environmental Action Plan:
     “The EU will further develop and implement approaches to address combination effects of chemicals”

2018: What’s happened – research yes, but what about policy and regulation?
7. Policy action ideas

• **Short term, 1-2 years:**
  – REACH: adequate control considering mixtures (mixture assessment factor?), grouping and reducing exemptions
  – Mixture risk assessment in pesticide regulation and others
  – Analysis of real exposures (HBM4EU etc)
  – New EU EDC strategy includes action on cocktail effects

• **Medium term, 2-4 years:**
  – Finalisation of revision of law on chemicals in Food Contact Materials that promotes substitution, and covers all materials
  – Openness on ingredients, better tests - EDCs, mixtures etc.

• **Long term, 5 years plus:**
  – Protection of people & nature against chemical mixtures