EUROPEAN COMMISSION

Community Research

SEVENTH FRAMEWORK PROGRAMME

RISKCYCLE

Research needs and outcome of the EU funded project RISKCYCLE

Future Impact of the project RISKCYCLE

Original aim is to investigate and define the future research needs and gaps in this field

The following research needs and gaps have been considered to be important by the project partners

Lack of data about chemicals in products

- lacking data about chemicals in products, i.e. detailed composition and the amounts of numerous additives
- quantities of additives going into the environment are unknown
- Risk-assessments for these substances are difficult to accomplish and the results become uncertain
- Assessment of diffuse emissions from products are difficult, if already the quantities inside are unknown

Risk of chemical mixtures

- risk of chemical mixtures: uncertainty that only one additive occurs at one time
- it is more likely that chemicals react from the given single chemicals into new substances
- any approach should face the prediction of risks associated to chemical mixtures
- Another concern: way of use, the kind of use and the unintended use of substances

Release of chemicals from materials and goods

- chemicals and additives are usually embodied in materials, formulations or objects
- release and subsequent exposure depends not only on their individual physical/chemical properties, but also on the physical macroscopic constraints of the materials of which they are part
- current risk assessment methods usually neglect those aspects
- any realistic exposure estimation and modeling should take them into consideration

Scarce information on characteristics related to the use of chemicals

- Exposure and subsequent risk to chemicals in real world depend not only on their intrinsic PBT properties (Persistence, Bioaccumulation and Toxicity)
- PBT properties are relatively well known
- other characteristics and circumstances related to their use for which the necessary information is scarce or inexistent

Associated uncertainty is missing for in vivo experiments

- To avoid animal testing: availability of experimental values, with associated uncertainty is of high concern
- Experimental data are at the basis of risk assessment and of models in general

→ necessary for the development and validation of non-testing methods, such as QSAR, read-across and for in vitro methods

- major limitation with current data collections from in vivo experiments: in many cases the associated uncertainty is missing

→ limits the correct evaluation of alternative methods and of risk assessment

Necessity to increase the acceptability on alternative methods

- Necessity to increase the confidence and acceptability on alternative methods
- use of alternative methods suffers from a poor acceptance (partially related to cultural issues)

→ poor knowledge on the possibilities offered by these methods

- limited experience on the use of data obtained with alternative methods within a risk assessment scenario
- Even though current legislation, such as REACH promotes the use of all data, from different sources, the experience in Europe is very scarce

Missing common database for additives in the WEEE

- establishment of a common database for additives in the WEEE
- Major issue: lack of data together with the information overlaps
- Need for a common database containing information such as quantity of e-waste entering in countries (i.e. China) or content of a certain additive in WEEE

Limited specific data about informal recycling processes (efficiency,emissions)

- principal ways of informal recycling are well-known
- Missing: specific data such as the efficiency and their emissions
- two approaches have been followed in the present study:
  - It has been assumed that the informal recycling efficiencies are lower than the conventional ones
  - the emissions to the environmental compartments have been assumed as the maximum possible trying to be as conservative as possible
- A better knowledge on this would make the scenarios more realistic!

Lack of information about additives in products in LCA databases

- databases need to be supplemented with data on diffusive emissions of additives in the use phase
- production of plastic and paper as well as waste treatment methods should include additives as well
- Unknown issue of assessing additives in products within an LCA
- most LCA studies focus only on CO_2, and not on other emissions from additives
- fate of additives in waste management processes needs to be established, for example for incineration or leaching in landfills

More detailed emission models for products need to be developed

- there is a diffuse spreading of organic contaminants in the environment
- enriched levels in urban areas suggest that articles may be an important emission source for some chemicals
- more detailed emission models for products need to be developed to better assess the exposure of humans and the environment to these substances
- models need to account for aspects such as the geometry of the product, if the product is layered and how the product is used

Necessity to establish the link between emissions and impacts of a substance

- polluter pays principle: the one who emits a substance should pay for the consequences
- to assess the external costs caused by emissions of chemicals: the link between emissions and impacts of a substance need to be established for more substances and for mixtures of substances
- more studies regarding valuation of impacts/externalities need to be performed

The current legislation / policies should be optimised

- to achieve an efficient chemical legislation in Europe
- evaluate the current legislations and polices from a cost-benefit perspective
- based on the outcome of such an evaluation, the current legislation/policies could be optimised with regard to both effect (such as emission reductions) and economic aspects

Where to find the information?

Download via websites:

- Project website:

  www.wadef.com

- Conference website:

  www.faa-tagungen-dresden.de/en/riskcycle

Tagungen in Dresden

organisiert durch das
Forum für Abfallwirtschaft und Altlasten e.V.

RISKCYCLE

8 – 9 May 2012, Dresden, Germany

What do we want to achieve?

The consortium of RISKCYCLE consists of international, European and national experts and stakeholders from different programmes and organisations.

The primary aim of RISKCYCLE is to identify future R&D needs required to establish a risk-based assessment methodology for chemicals and additives in products that will help reduce animal testing while ensuring the development of new chemicals and product management pattern leading to minimized risks for health and the environment.

Conference Topics

- Flow and emissions of additives – from production to reuse, recycling and waste for the following sectors: textiles, electronics, plastics, leather, paper and lubricants
- Emissions from recycling processes in a circular economy at global scale
- Fate and behaviour of chemical additives in recycling products
- Alternative toxicity testing for additives in products to reduce animal test in line with the objectives of the REACH directive

CONFERENCE DESK

Organisation/ Topics

Dipl.-Ing. Veit Grundmann
Technische Universität Dresden
Institute of Waste Management and Contaminated Site Treatment
Pratzschwitzer Str. 15
01796 Pirna
Germany

Phone: +49 3501 530041
Fax: +49 3501 530022
veit.grundmann[at]tu-dresden.de

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Thank you for your attention!