



Do not allow poisoning of consumer products in the Czech Republic:
A practical example of XRF testing

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Public interest in toxic chemicals

- **Compounds of high concerns:** phthalates (PVC), brominated flame retardants (BFRs), perfluorinated surfactants (PFCs), endocrine disruptors, heavy metals
- **Products of high interest:** toys, children care products, food contacting materials, household furnishings

Happenings with XRF spectrometer



Audits in family centres



Market survey



A public concern in toxic flame retardants

- Many different consumer products in homes
- Damage to the nervous and reproductive systems
- Toxic chemicals market as flame retardants do not actually work in products
- Toxic flame retardants increase danger of death in fires
- Dioxin and furan formation

Brominated flame retardants (BFRs)

- Commercial-PentaBDE (tetraBDE and pentaBDE)
- Commercial-OctaBDE (hexaBDE and heptaBDE)
- HBCD
- DecaBDE (and nona/octaBDE), firemaster 550 or chlorinated tris are not (yet!) listed as POPs

Recycling exemptions

Decision SC-4/18:

A Party may allow recycling of articles that contain or may contain tetraBDE and PentaBDE (hxBDE, hpBDE)... provided that:

(a) The recycling and final disposal is carried out in an environmentally sound manner and does not lead to recovery of tetraBDE and pentaBDE for the purpose of their reuse;

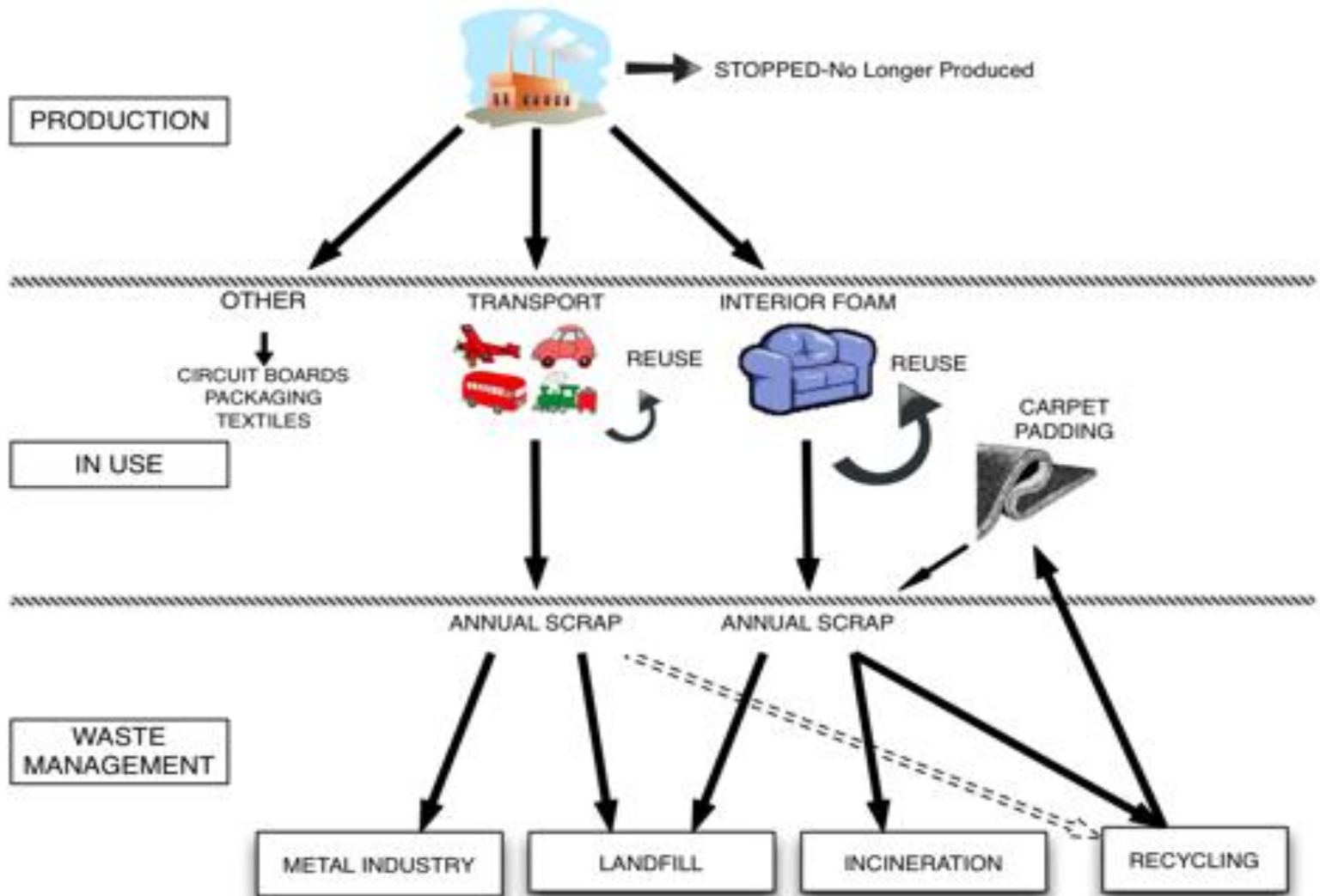
(b) The Party does not allow this exemption to lead to the export of articles containing levels/concentrations of tetraBDE and pentaBDE that exceed those permitted to be sold within the territory of the Party; and...

Impacts of recycling articles containing PBDEs

- What is the flow of PBDE/BFR in recycled materials?
- What articles are contaminated?



PentaBDEs Flows



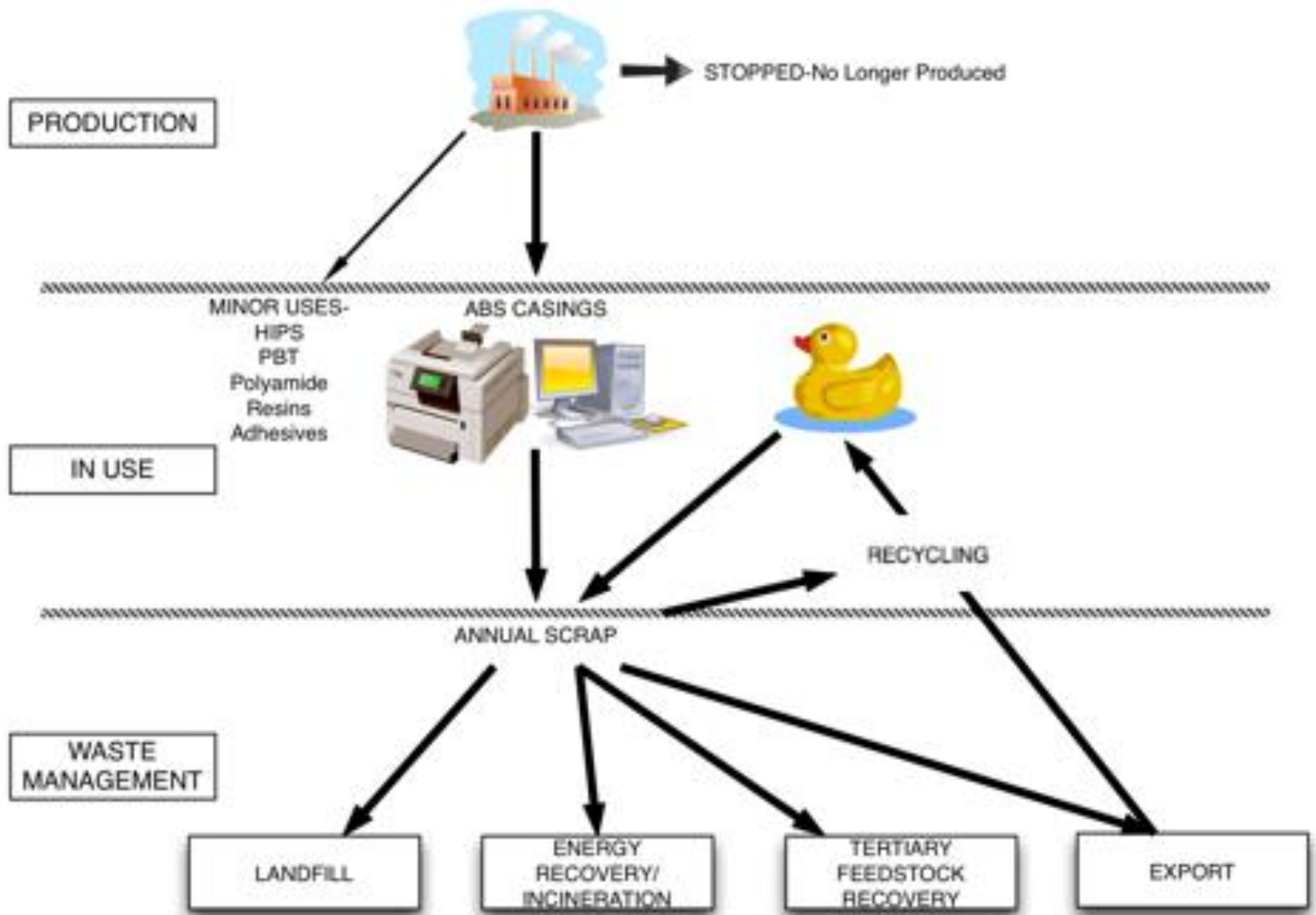
Contamination of PUR foam from Recycling of PBDEs: Carpet pad

- Foam samples were collected from six countries: Canada, Hungary, Nepal, Kyrgyzstan, Thailand, and USA



BDE	No. samples containing specific BDE	Range (ppm)	No. samples >50 ppm
Penta	20 (77%)	1 – 1130	13 (50%)
Octa	17 (65%)	1 – 263	7 (27%)
Deca	23 (89%)	1 – 166	6 (23%)

OctaBDE flows



Contamination of Plastic Flow from Recycling of PBDEs: Toys



Mixture of PBDEs & TBBA



DecaBDE

Contamination of Plastic Flow from Recycling of PBDEs: Toys



Mixture of PBDEs & new BFRs

Contamination of Plastic Flow from Recycling of PBDEs: Thermo cups



Mixture of PBDEs &
new BFRs

Contamination of Plastic Flow from Recycling of PBDEs: Hair accessories



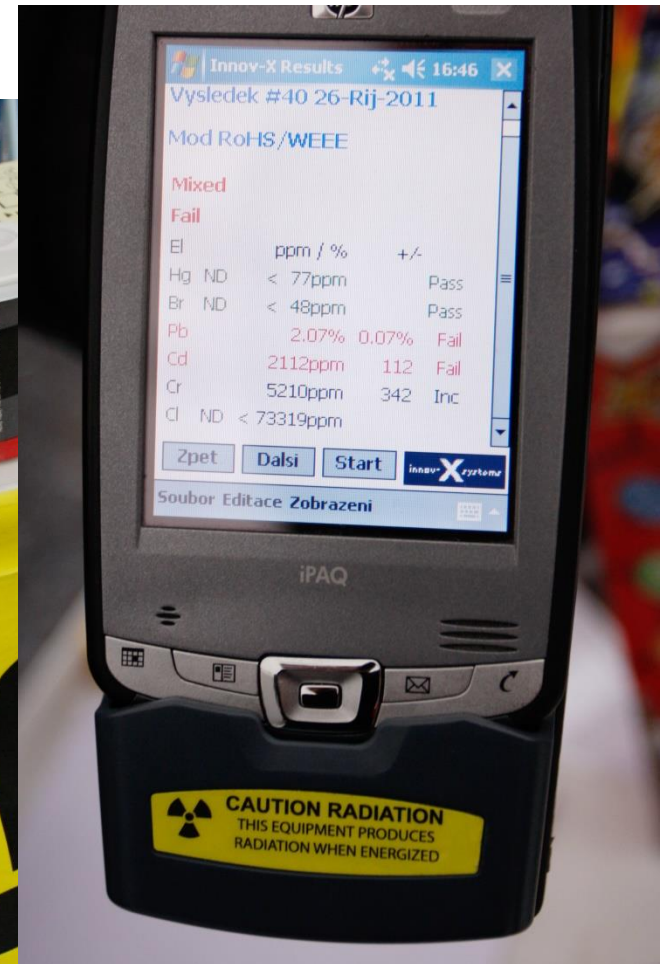
Mixture of PBDEs &
new BFRs

Public concerns in toxic heavy metals

- There is no safe level of lead, cadmium, or mercury in consumer products
- The methods of „extractable elements“ expects that toxics can only harm us if we swallow the product



Heavy metals in tableware



Thank you for your attention!

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