

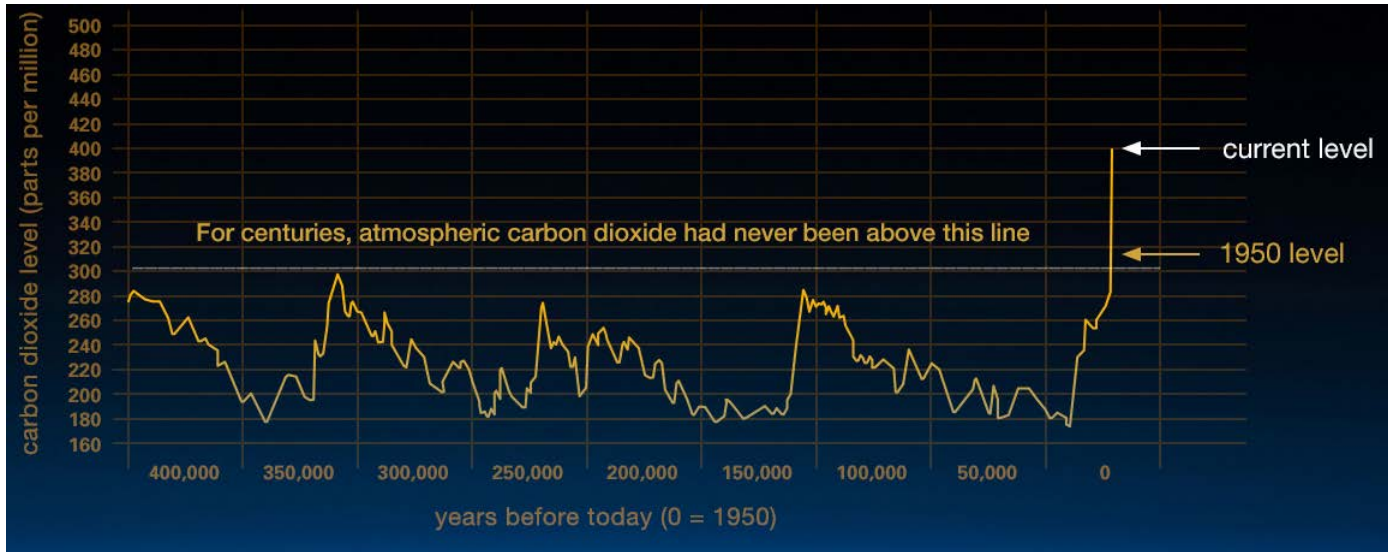
Waste & Chemicals in WEEE recycling

– Setting the right balance for a safe environment –
EERA meeting March 30th 2017



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Exponential growth of an “invisible” Pollutant



https://climate.nasa.gov/climate_resources/24/

- ▶ Emitting CO₂ is free of charge
- ▶ It is a most urgent global environmental threat
- ▶ And.....this discussion decoupled from debates over toxics

Recycling Process and hazardous substances



“Substances, preparations and components may be removed manually, mechanically or chemically, metallurgically with the result that hazardous substances, preparations, and components and those mentioned in Annex II are contained as an identifiable stream or identifiable part of a stream at the end of the treatment process. A substance, preparation or component is identifiable if it can be (is) monitored to prove environmentally safe treatment.”

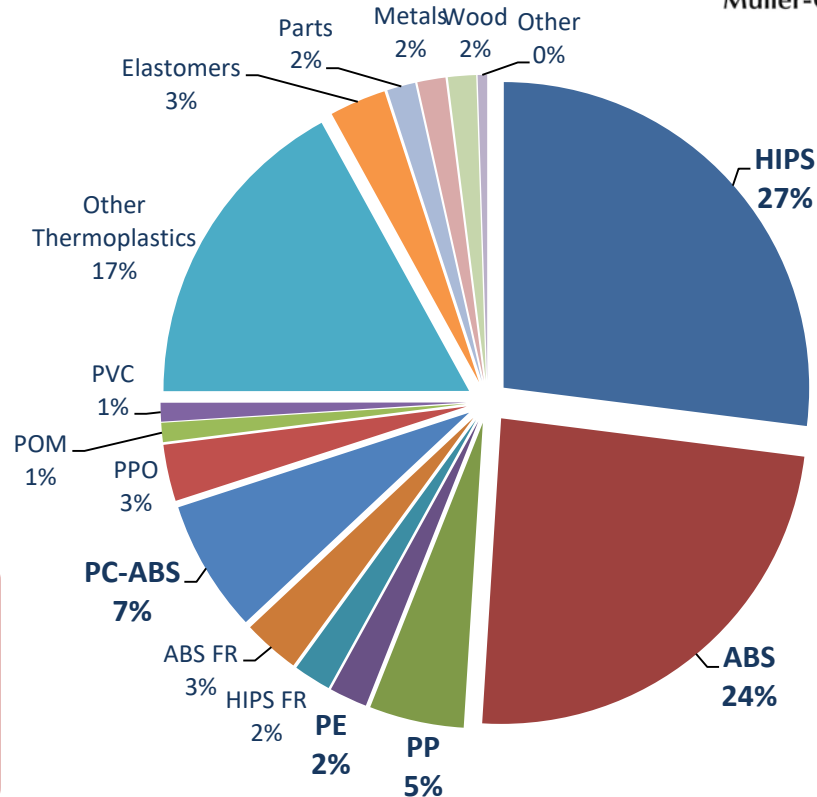
May I invite you to have a look at our WEEE Recycling Process?

Qualitative Approach

Average composition of WEEE plastics for recycling

WEEE Plastics	
ABS	24%
HIPS	27%
Polyolefines	7%
PC and PC-ABS	7%
Other plastics incl. BFR	29%
Parts and metals	4%
Other (mainly wood)	2%

Recycling WEEE Plastics at a yield of some 60 % has the potential of 2.5 Mio Metric Tons of CO₂ savings and this per annum. The equivalent of a 330 000 inh. city



Source: MBA Polymers

Scientific Approach

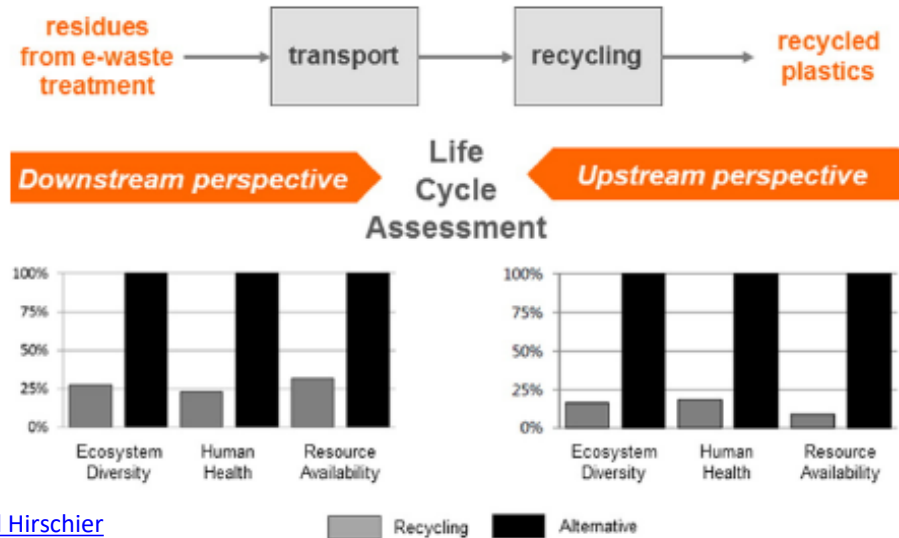
LCA PCR WEEE Plastic versus

1. Incineration of WEEE plastic and

Recycling PCR WEEE plastics 4 times better than Municipal Solid Waste Incineration

2. Production virgin plastics

Recycling PCR WEEE recycling option 6-10 times better than producing virgin plastics



If WEEE plastics recycling makes so much sense, why is there so little of it.....

- ▶ **It is difficult.....**
- ▶ **Most of the material disappears from Europe**
- ▶ **Very few companies invested in WEEE plastics recycling**
 - Due to the losses of material from Europe
 - **Ever increasing complexity of legislation**

Let's look at Brominated Flame Retardants as example

The complexity of the legal framework

▶ UN Conventions

- Basel Convention -> transboundary shipments of waste
- Stockholm Convention -> POP's
- Rotterdam Convention -> hazardous substances & chemicals

▶ EU Waste Legislation

- EU Waste Framework Directive
- EU Waste Shipment Regulation
- EU WEEE Directive

▶ Product Legislation

- EU General Product Safety Directive (GPSD)
- REACH Regulation
- RoHS Directive for EEE

A continuous flow of new initiatives with potential impact to recyclers

Legislation overview Brominated Flame Retardants



EEE Products

IT electronics
(microprocessors, computer servers, modems, printers, copy machines...)

Consumer electronics
(hair dryers, heaters, TV sets, laptops...)

White goods
(tumble dryers, dishwashers, washing machines...)

Plastic Parts

Housing

Printed circuit boards

Cables

Connectors

HBCD

DecaBDE³

c-PentaBDE

c-OctaBDE

BDP

RDP

TBBPA

DOPO

EBP

ATH

MDH

ATO

Br'd PS

Mel.Cyanurate

Annex XIV

POP under Stockholm

Restriction under RoHS

Restriction under REACH

No restriction

Deca-BDE as example of this complexity

▶ RoHS 1 and 2 as well as WEEE Directive

- Discussions and decisions to stop using PBDE's in new EEE as from 2004
- De-pollution criteria (subsequently in standards such as WEEE Labex and Cenelec)

▶ Differing interpretations on classification of plastics with BFR's in WSR

- Original only refers to PBB's, but a number of CA's decided to include other BFR's

▶ Stockholm and Basel conventions COP May 2017

- Current discussions on POP-listing of deca-BDE (after penta-, octa-BDE, HBCD etc)
 - Proposals of thresholds of as low as 10-50 ppm (!)
 - Proposals of de-pollution of plastics with PBDE's prior to recycling (!)

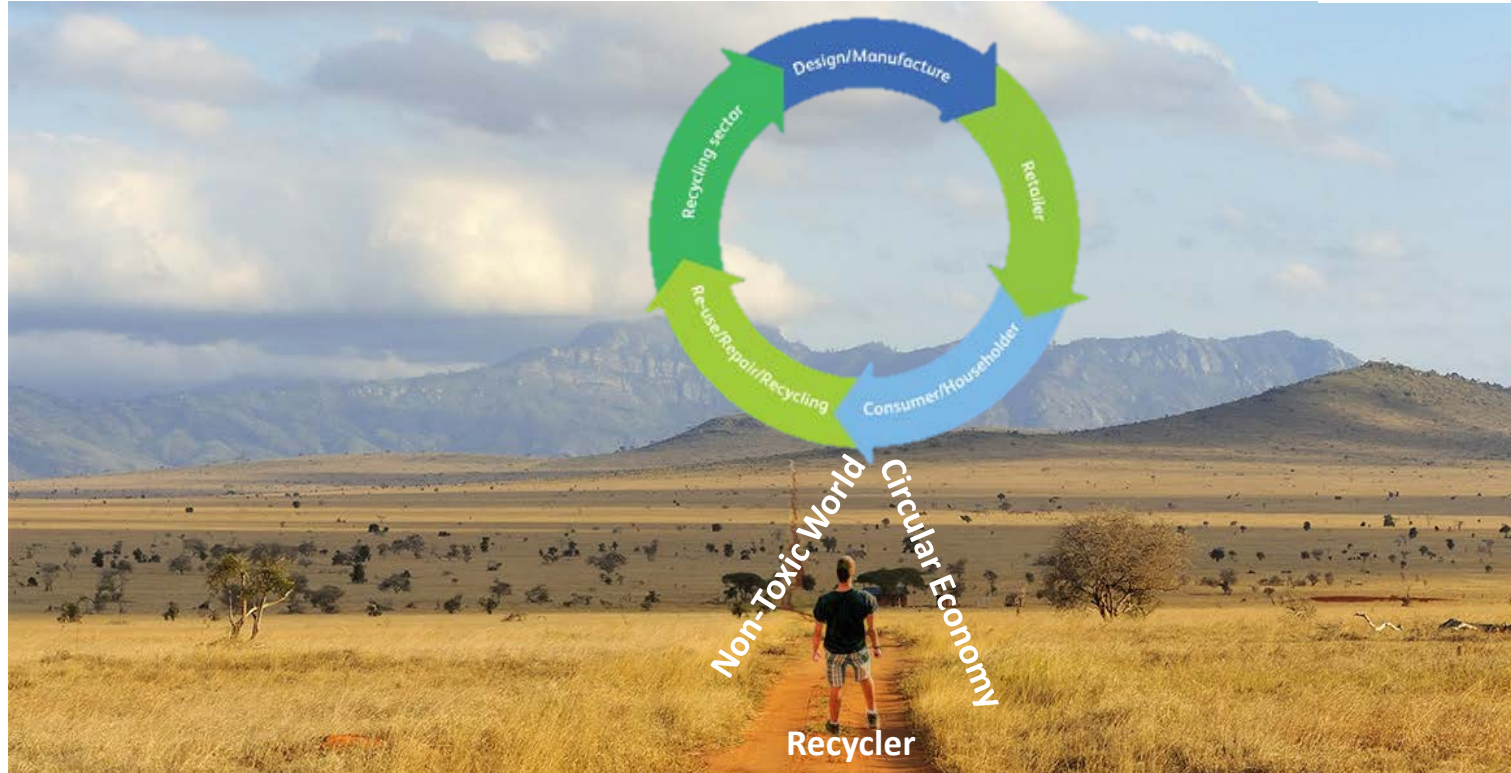
▶ REACH discussions on HBCD, Octa-, Penta, and Deca-BDE

Ever continuing discussions since 2004 creating legal uncertainties

The Environmental Canyon should be levelled out



And merge into a EU Environmental Roadmap to Circular Economy



Participation at COP2017



Keep WEEE plastics
in the loop!



www.mgg-recycling.com/weee



Keep WEEE plastics
in the loop!



Keep ELV plastics
in motion!



Pilot Project North Sea Resources Roundabout

- NSRR Stakeholder meeting coming Tuesday in Brussels
- Presenting a pilot project Fast Track Notification between NL and AT
- Target material flow: from **HKS Metals Netherlands**
- Material: WEEE Shredder Residues – EWC 19 10 02 or 19 10 05* Basel: not listed
- Final classification and volumes to be discussed and agreed
- Delivery to: **Metran Kematen/Ybbs Austria** – pre-consented facility for this waste code
- Request: development of a pilot project „Fast-Track Notification“
- **Proposed deliverables in summary**
 1. Requirements for a mutual recognition of Pre-Consented Facilities
 2. Which data need to be exchanged on Pre-Consented Facilities (EDI)
 3. What information is required for a notification request to Pre-Consented Facilities
 4. What needs to be done to get a notification request accepted within one week
 5. What information is required for these shipments and can digital information be used?

Fast-Track Notifications have the potential to free up many resources