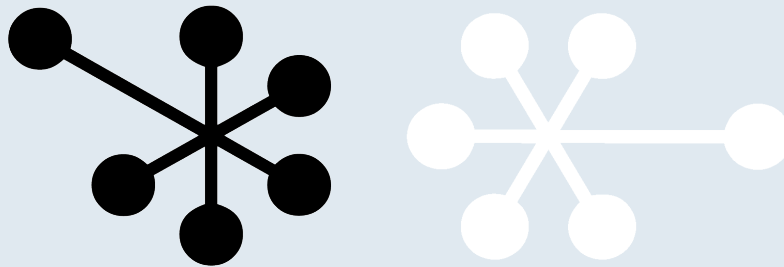


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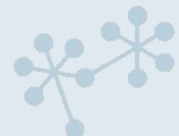


## EU regulatory framework on hazardous substances relevant for the recycling sector

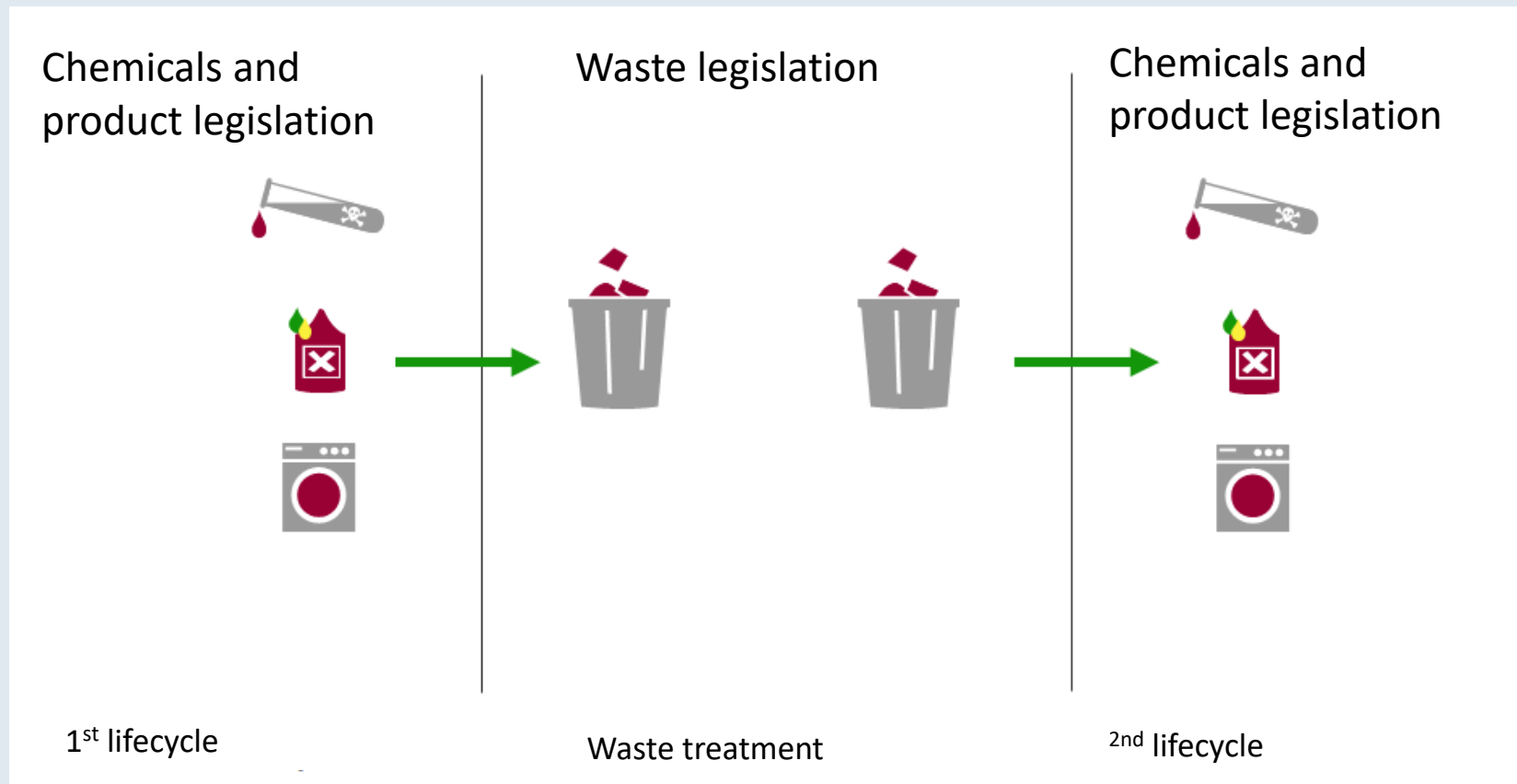


# Overview

- Recycling – (at) the interface between chemicals, product and waste (legislation)
- Types of requirements on chemicals and their interfaces
  - From waste legislation
  - From chemicals legislation
- Conclusions



# Recycling: The interface between waste and products



Source: UBA Texte 27/2004: Dialoge zum sachgerechten Umgang mit besorgniserregenden Stoffen in der Kreislaufwirtschaft  
<https://www.umweltbundesamt.de/publikationen/dialoge-sachgerechten-umgang-besorgniserregenden>



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# Legal requirements on hazardous substances

## Communication

- Content of hazardous substances (HS): supply chain:
  - Substances and mixtures: Safety Data Sheet
  - Articles
    - Identity of substance of very high concern (SVHC) if > 0.1%
    - Disposal info, e.g. batteries, EEE
- Consumer wastes: SVHC in Products Database
- Waste Classification acc. to EU waste catalogue (EWC)
  - Based on origin of waste
  - Mirror entry (\*) if hazardous according to classification rules
  - **20 01 xx and 20 03 xx** = municipal wastes
- Detailed info on HS content of waste missing; but precondition to produce safe secondary materials



# Current (gaps in) information flows on HS

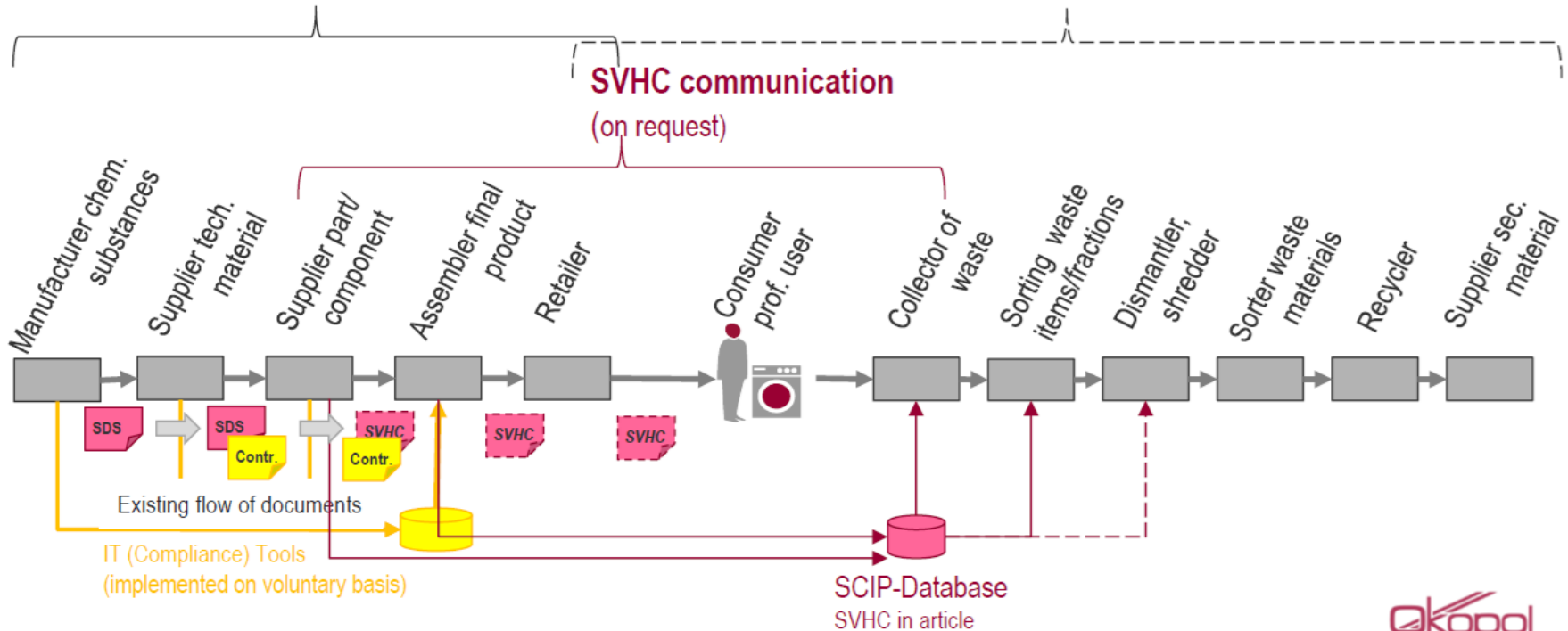
## Current situation

### Supply chain communication

(mostly) established: SVHC, RDS  
sometimes: further SoC (defined in sector or contracts), ..

### Use- & waste chain communication

not established: RDS, SoC, ..... => **the Info Gap**

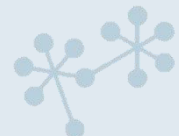


Source: INFORMATION FLOWS ON SUBSTANCES OF CONCERN IN PRODUCTS FROM SUPPLY CHAINS TO WASTE OPERATORS  
<https://op.europa.eu/en/publication-detail/-/publication/59d9b462-a9f6-11ea-bb7a-01aa75ed71a1/language-en>



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# Legal requirements

## Waste Framework Directive



Separation of HS



Prevention

Preparation for re-use

**Recycling**

Other recovery

Disposal

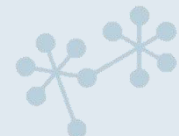
Destruction or enclosed „storage“ of HS

Decision on appropriate pathway to consider (DE):

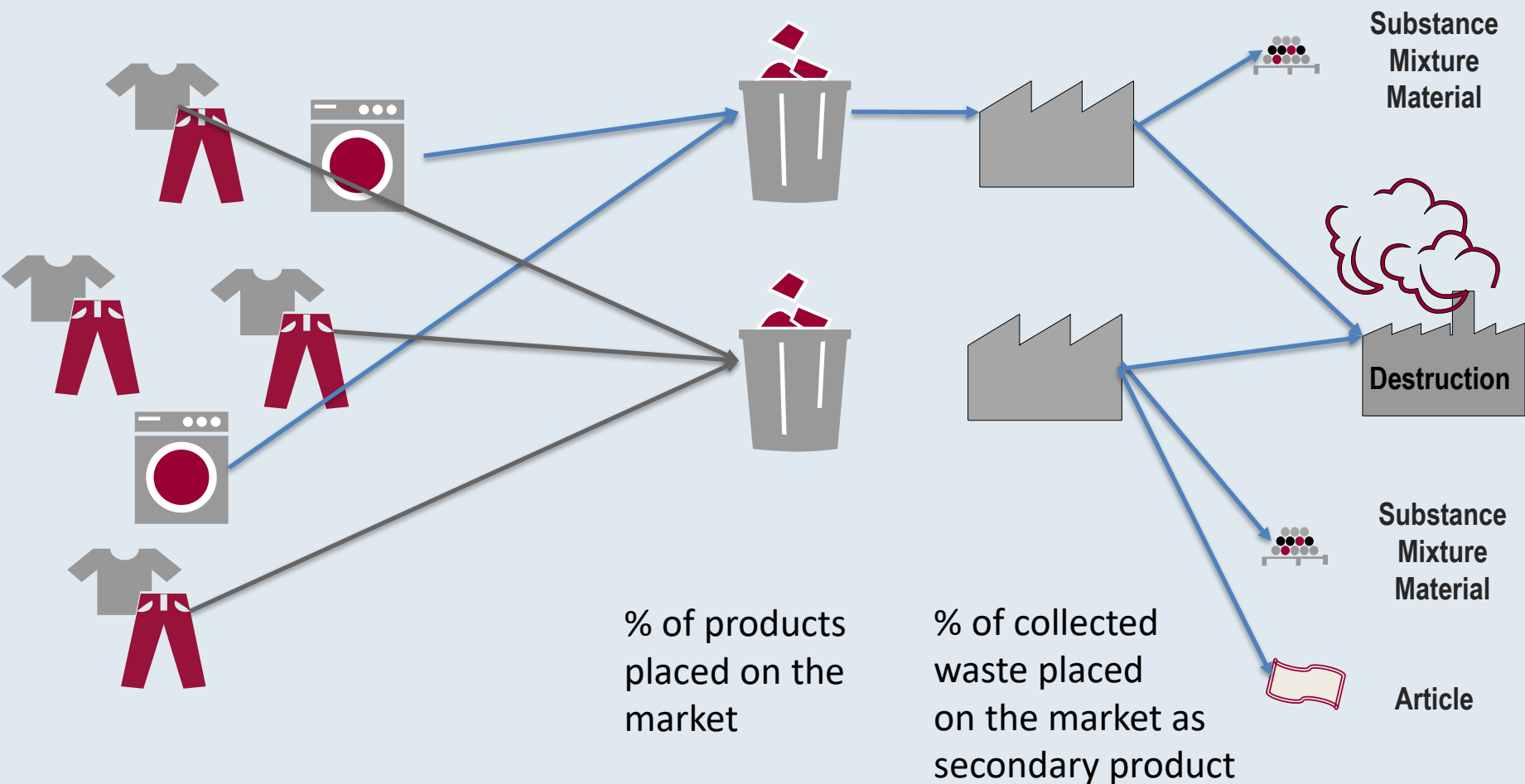
- Emissions,
- Benefits for environment,
- Energy consumption,
- Accumulation of chemicals in products and waste streams
- Technical and economic feasibility

Sale of products

if compliant with chemicals/product legislation



# Collection and recycling targets



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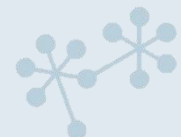
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# Legal requirements - waste

## Collection and recycling targets – examples

- Waste framework directive
  - Separate collection for at least paper, metal, plastics, glass,
  - Increase of recycling min. 50%
- Batteries regulation
  - EPR scheme with collection targets, e.g. portable batteries 45% (now) to 63 % end of 2027...
  - Minimum content of recovered substances in certain batteries
- Packaging and Packaging Waste
  - Recyclable by default
  - Recycling targets by specific waste stream, e.g. paper, plastics

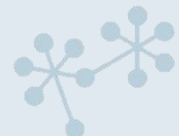




# Legal requirements - waste

## Related to the content of HS

- Waste classification
  - Mirror entries  
(discarded equipment, batteries, construction wastes: insulation with asbestos, mixed with HS)
  - Triggers documentation and treatment requirements



# Waste classification

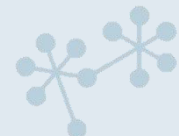
- Waste generator: requirement to classify:
  - Select waste code acc. to origin
  - If mirror entry exists, classification according to waste law
  - Asterisk if hazardous
- **Non-hazardous waste may contain hazardous substances, e.g.**
  - Paper: BPA from thermal papers, PFAS from food packaging
  - Plastics: hazardous flame retardants, softeners
- No communication on specific substances



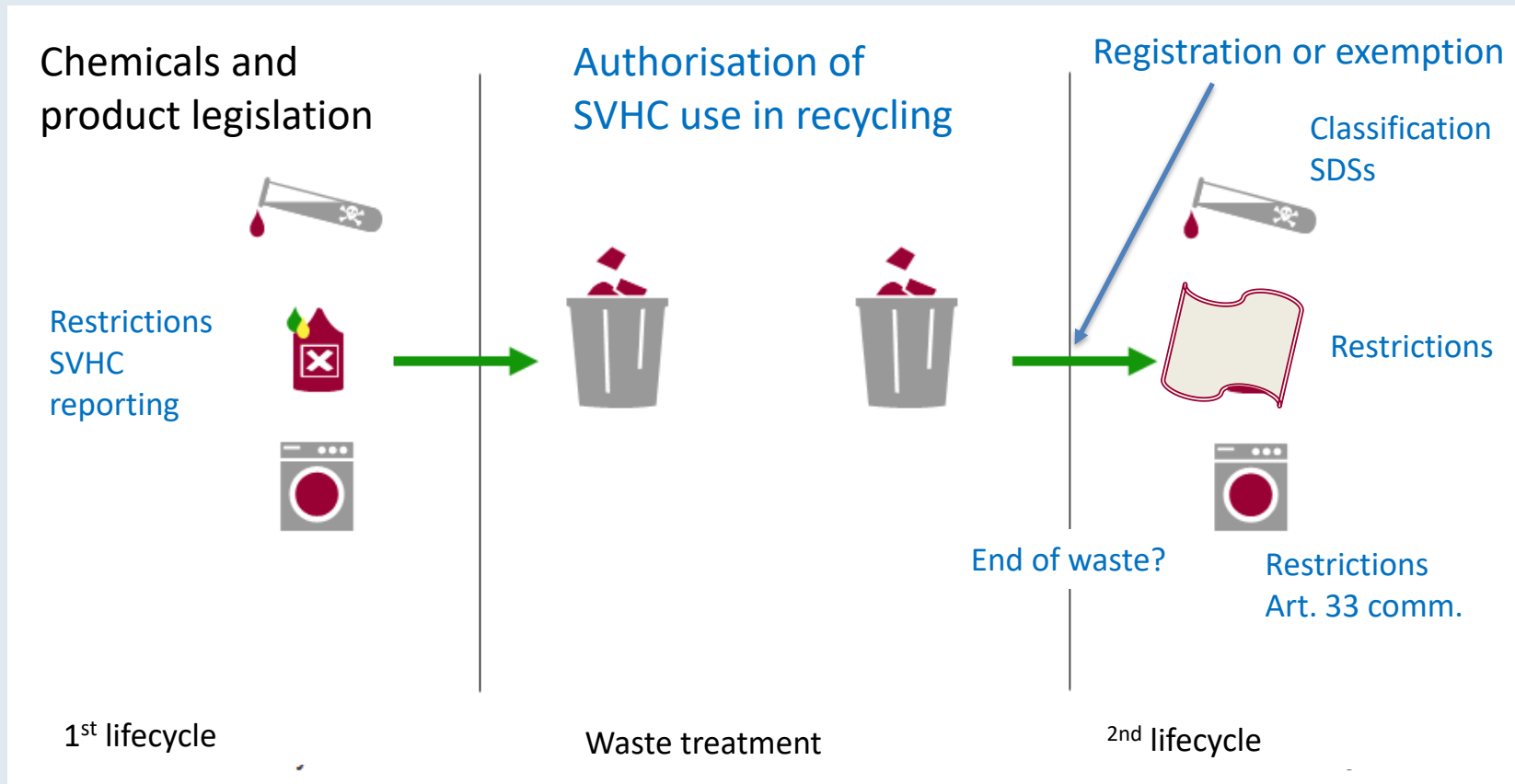
# Legal requirements - waste

## Related to the content of HS

- Waste classification
  - Mirror entries  
(discarded equipment, batteries, construction wastes: insulation with asbestos, mixed with HS)
  - Triggers documentation and treatment requirements
- POPs regulation
  - POPs > thresholds → destruction/ transformation of POP content
  - No recovery or recycling of POPs allowed
  - Control and traceability of wastes
- Packaging and packaging waste (proposal)
  - Heavy metals < 100 mg/kg
  - No substances disturbing the recycling process



# Recycling: The interface between waste and products



Source: UBA Texte 27/2004: Dialoge zum sachgerechten Umgang mit besorgniserregenden Stoffen in der Kreislaufwirtschaft  
<https://www.umweltbundesamt.de/publikationen/dialoge-sachgerechten-umgang-besorgniserregenden>



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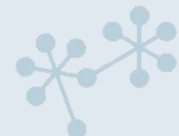
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# Legal requirements – chemicals

## REACH

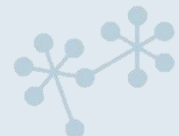
- Exemption from registration
  - Recovered substances is identical to a registered one
  - Recovery company has safety information; e.g. in form or an SDS
- For SVHC on authorisation list: Authorisation needed or limiting conditions
- Restrictions influence input/processing/market for secondary materials
- SVHC communication for articles (directly produced, using recycled substances)



# Legal requirements – chemicals

## Opportunities

- Collection targets increase amount of available input wastes
- Content of recycled materials in products increases market demand
  - E.g. P&PWR
  - Ecodesign for sustainable products regulation
- Discussion about circular economy increases general acceptance of recycled materials



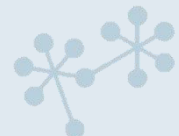
# Conclusions

- Several different types of requirements
  - Collection
  - Processing
  - Use of secondary materials
- Information on the composition of post-consumer wastes largely absent



# Conclusions 2

- Information on hazardous substances is a pre-condition for decisions in the waste treatment chain
- Efficient and effective recycling and generation of clean secondary materials requires communication / cooperation along the production circle – including in/to the waste chain
- Hazardous substances is only one among several aspects determining the fate of wastes





# Conclusions 3

- Focal area of the FFR2 project
  - Obtaining information and communicating on waste composition (regarding HS content)
  - Identifying business cases for “cleaner” secondary materials
  - Implementing chemicals risk management during recycling processes (entire waste treatment chain) and for the final product

