



LIMITATIONS OF REGULATORY RISK ASSESSMENTS OF CHEMICALS

The example of biocidal active substances in households



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→ exemptions e.g. for plant protection products, human or veterinary pharmaceuticals, personal care products



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Main group 2: Preservatives



Main group 3: Pest control



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Main group 1: Disinfectants



Main group 2: Preservatives



Main group 3: Pest control



Main group 4: Other biocidal products

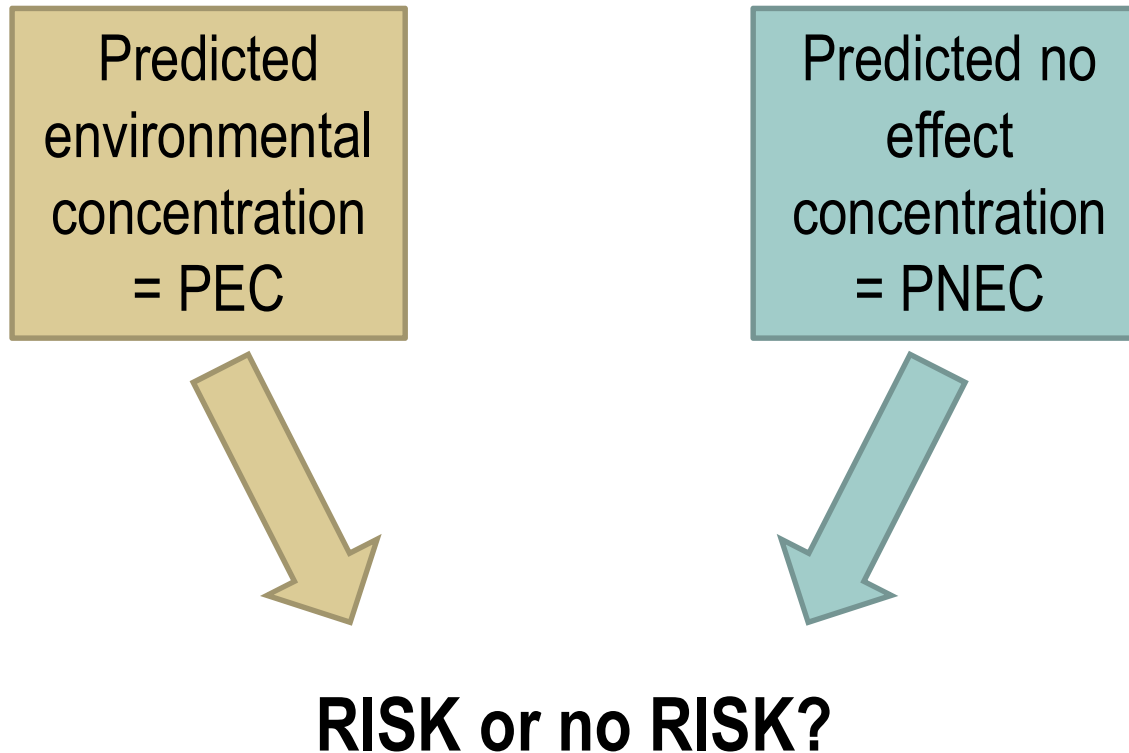


Environmental risk assessment

RISK or no RISK?

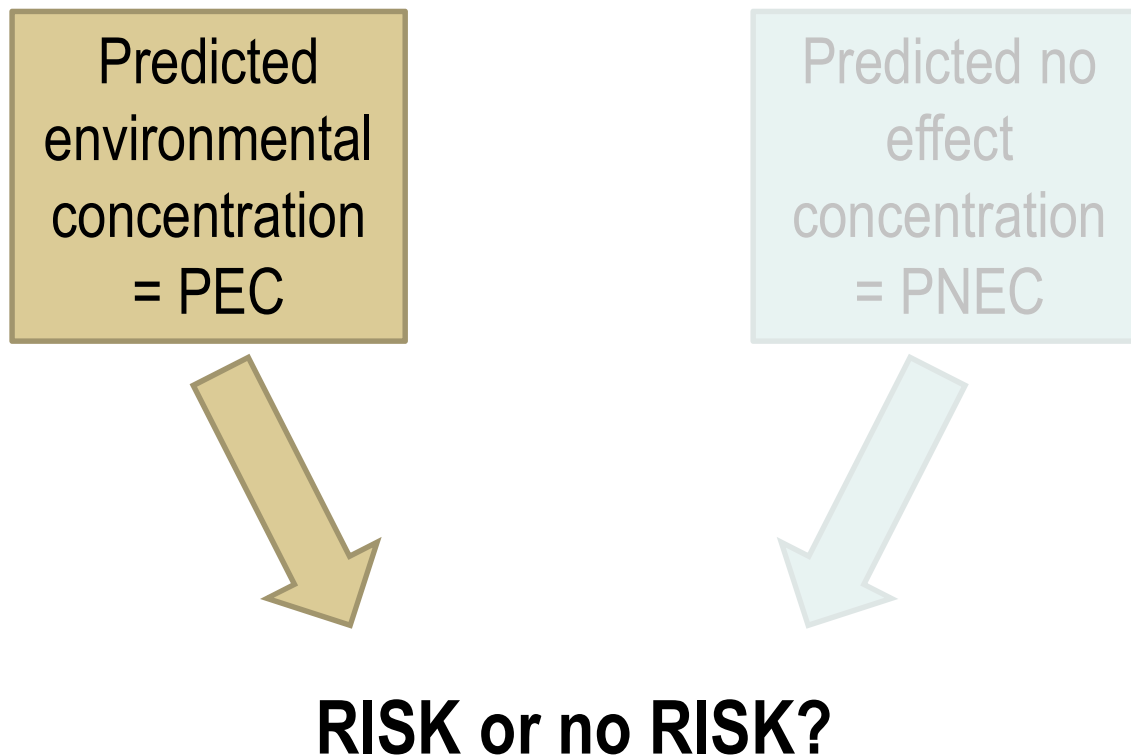


Environmental risk assessment





Environmental risk assessment





Biocides

Emissions of biocidal active substances from households can originate from several product categories:

**Biocidal active substances
according to Biocidal Products
Regulation 528/2012**



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**Biocidal
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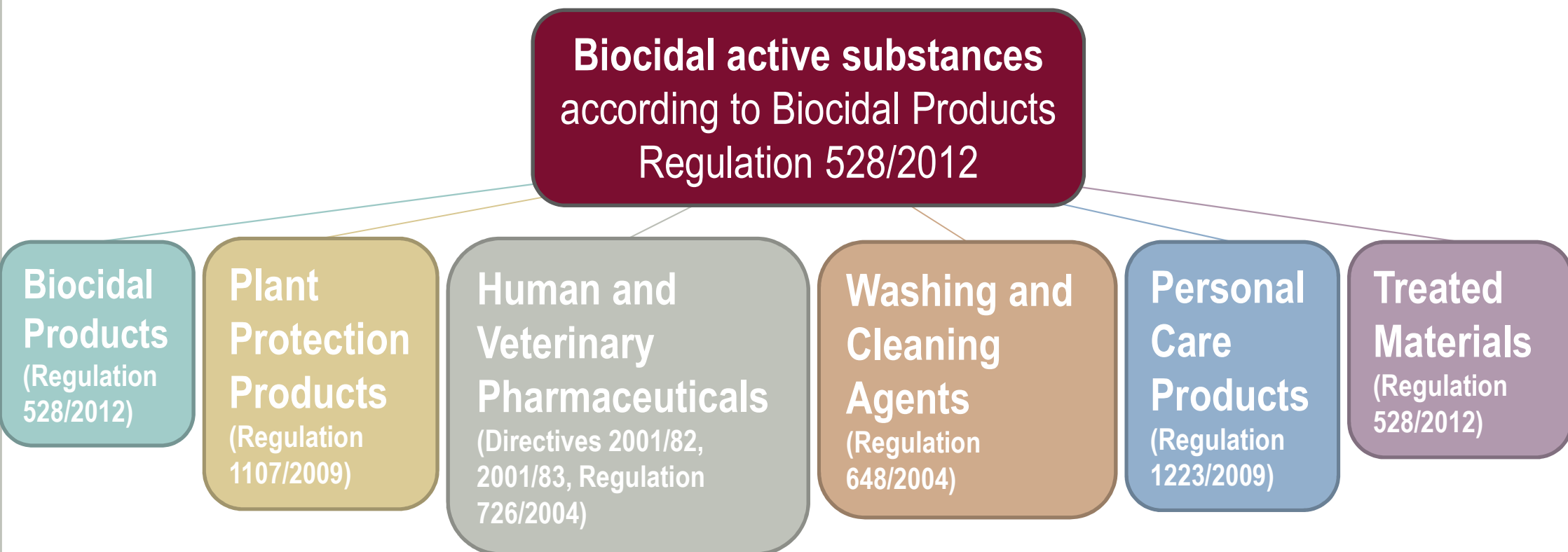
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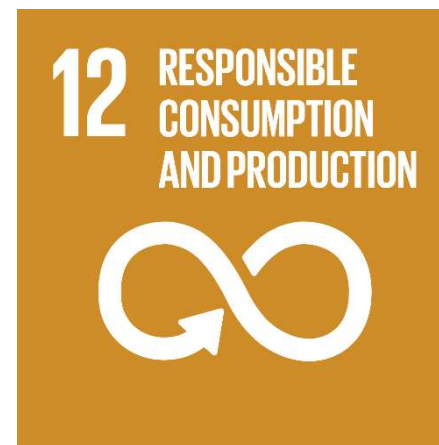


Goal

Describe cases where biocidal active substances might enter the sewage system **without falling under the Biocidal Products Regulation**



Minimize the release of hazardous chemicals (6.3)



Environmentally sound management of chemicals (12.4)



Methods

- Interviews with standardised questionnaires (not part of this presentation)
- Barcode scans:
 - all products for the control of pests
 - all washing and cleaning products
 - certain personal care products with high release to wastewater





Study areas



Rural neighbourhood
(Main study site)



Intermediate neighbourhood



Urban neighbourhood



Results

- Scan of almost 3,000 products
- Retrieved:
 - Names of 96 % of the scanned products
 - Ingredients of 93 % of the scanned products
- 214 biocidal active substances detected that were at least identified under the old Biocidal Products Directive 98/8/EC
- Results only include information regarding 79 active substances currently under review or approved active substances



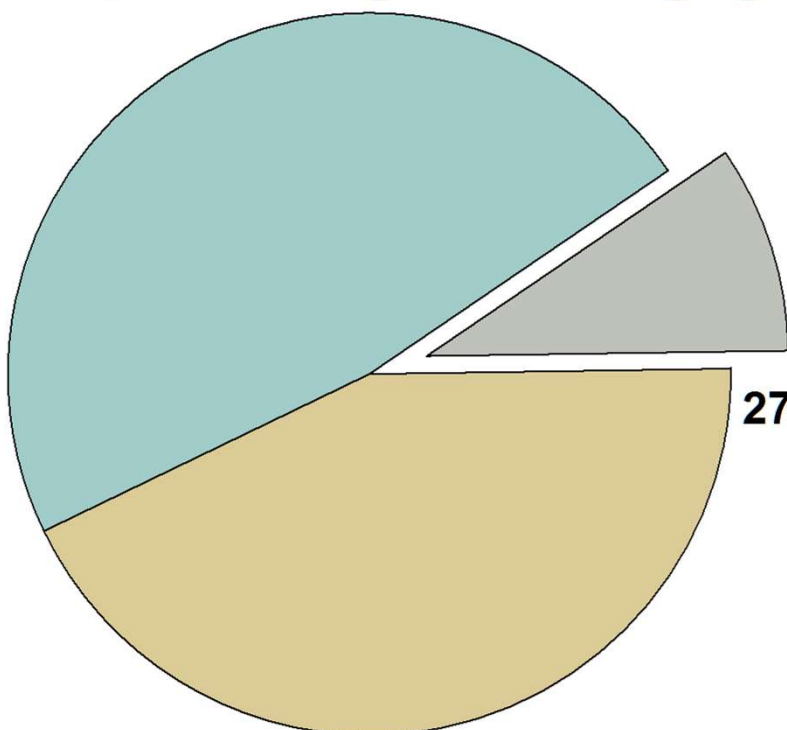
Results

- Households with biocidal active substances: 100%
- Households with biocidal products: 75%
- Average number of biocidal products per household: 1.7
- 9 product types present in the households



Results: Product categories

1,411 Washing and Cleaning Agents

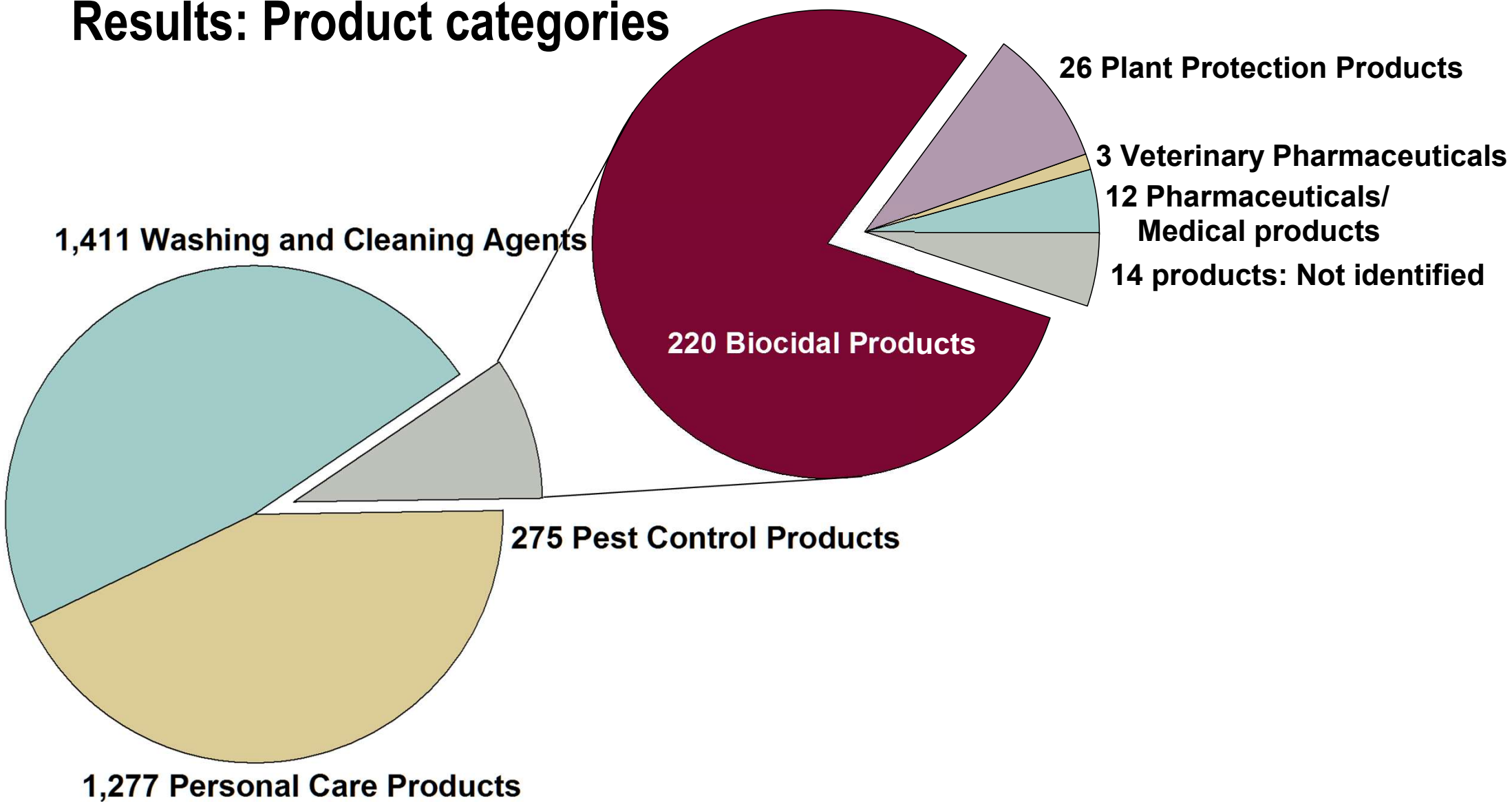


275 Pest Control Products

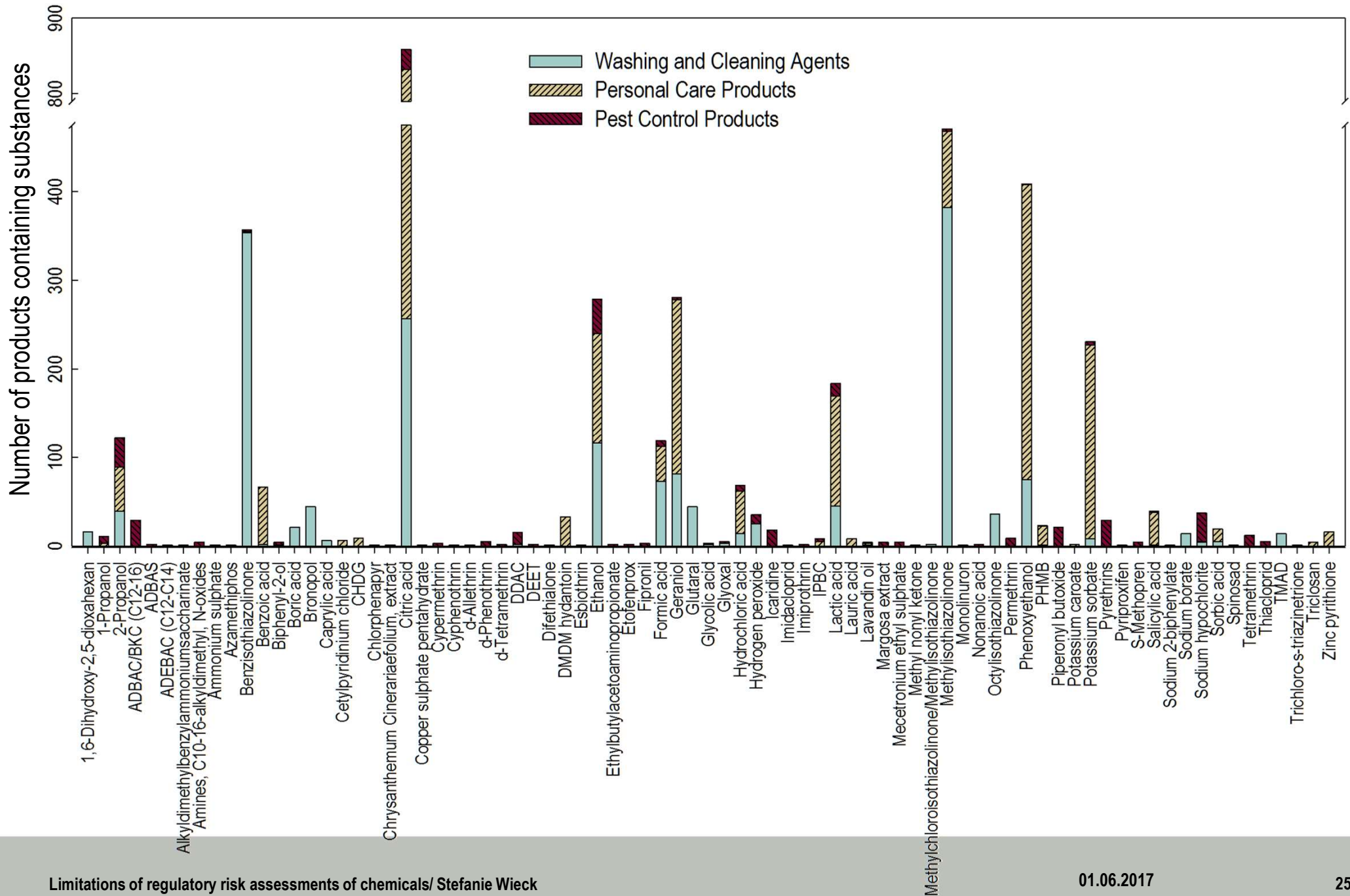
1,277 Personal Care Products



Results: Product categories

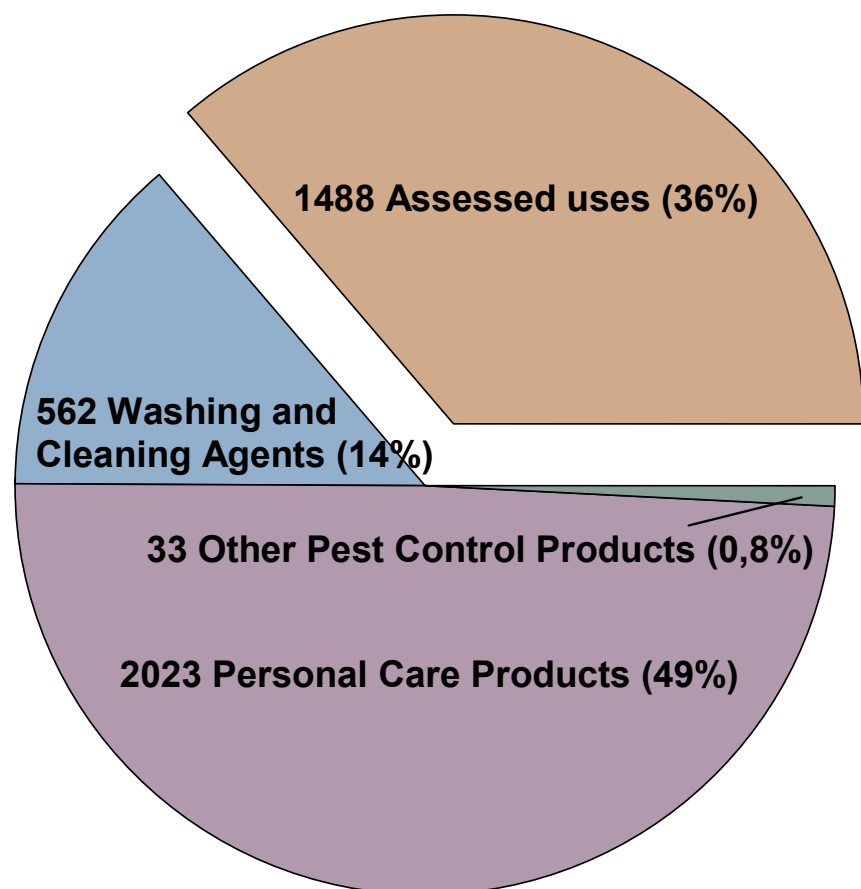


Results: Substances found in the products





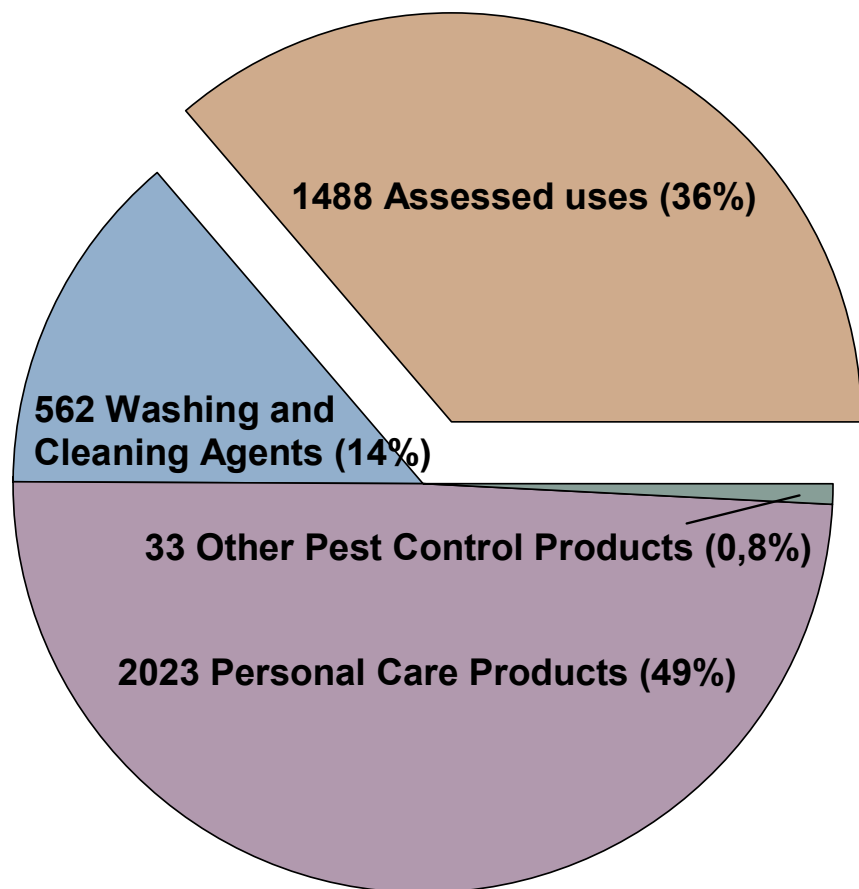
Results: Uses not falling under Biocidal Products Regulation



- 64 % do not fall under the risk assessment of BPR because:



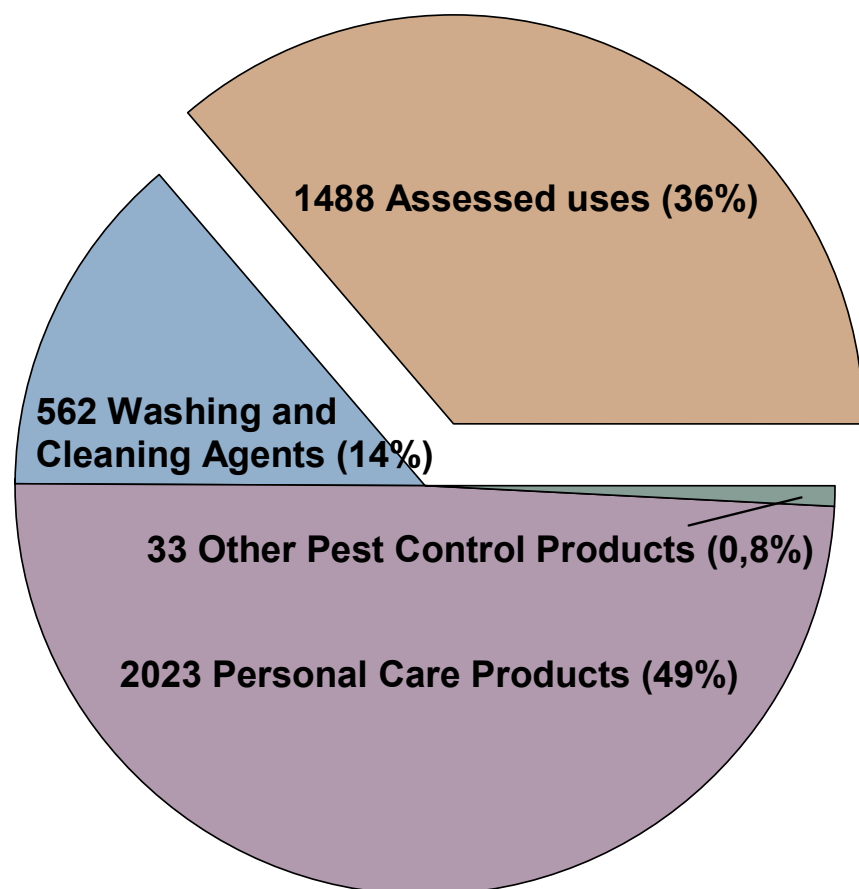
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 - Use in a washing and cleaning agent without being assessed as in-can-preservatives (product type 6)



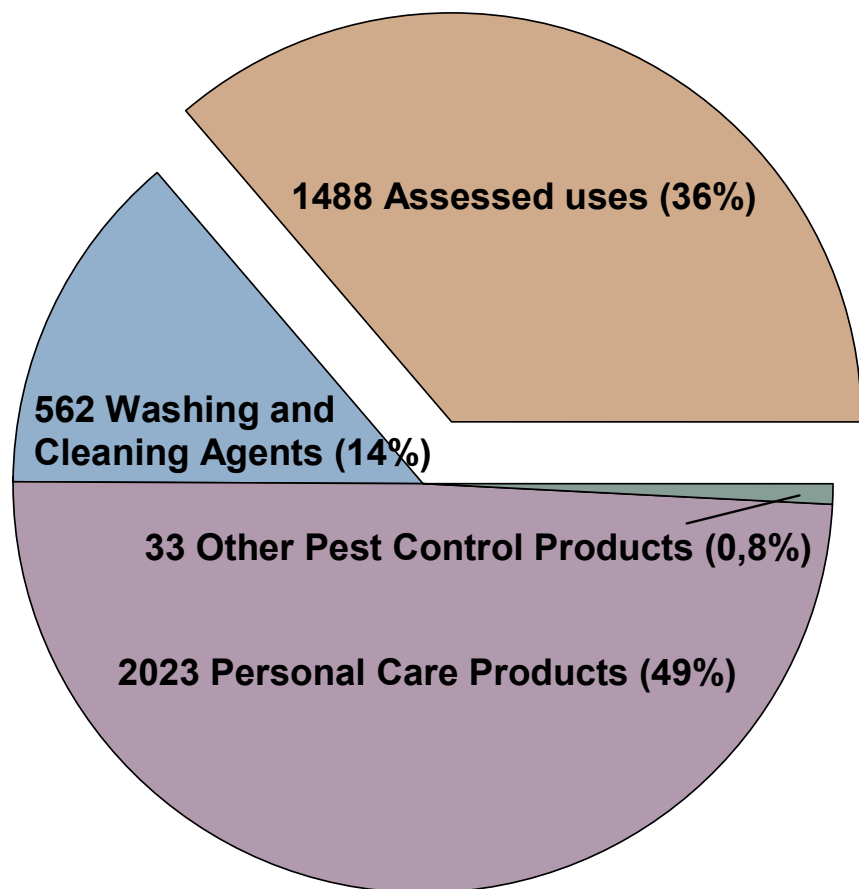
Results: Uses not falling under Biocidal Products Regulation



- 64 % do not fall under the risk assessment of BPR because:
 - Use in a washing and cleaning agent without being assessed as in-can-preservatives (product type 6)
 - Use in a personal care product



Results: Uses not falling under Biocidal Products Regulation



- 64 % do not fall under the risk assessment of BPR because:
 - Use in a washing and cleaning agent without being assessed as in-can-preservatives (product type 6)
 - Use in a personal care product
 - Use in another pest control product than biocidal product



Discussion

- Personal care products and washing and cleaning agents clearly **outnumber biocidal products** as emission sources of active substances in wastewater



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- Risks might be **underestimated** because not all emission sources are considered during PEC calculation (no aggregated exposure assessment)

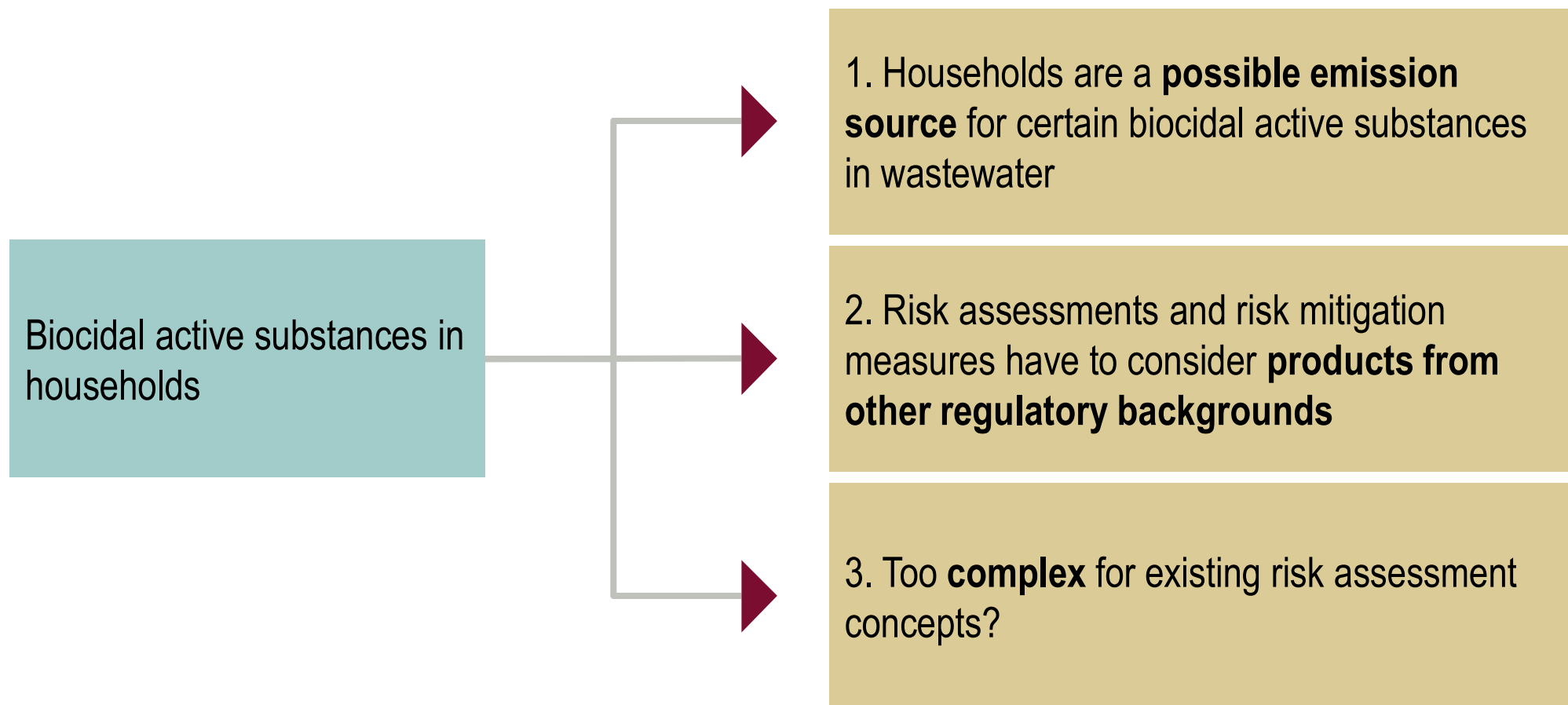


Discussion

- Personal care products and washing and cleaning agents clearly **outnumber biocidal products** as emission sources of active substances in wastewater
- Risks might be **underestimated** because not all emission sources are considered during PEC calculation (no aggregated exposure assessment)
- Not all monitoring results of biocidal active substances can be explained by **product inventory** → emissions from building materials



Conclusions



→ **Sustainable use of biocides**



Acknowledgments

I would like to thank

- the participants for letting me in their houses and answering all my questions
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Literature

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Wittmer IK, Scheidegger R, Bader H, Singer H, Stamm C. *Loss rates of urban biocides can exceed those of agricultural pesticides*. The Science of the total environment 2011;409(5):920–32

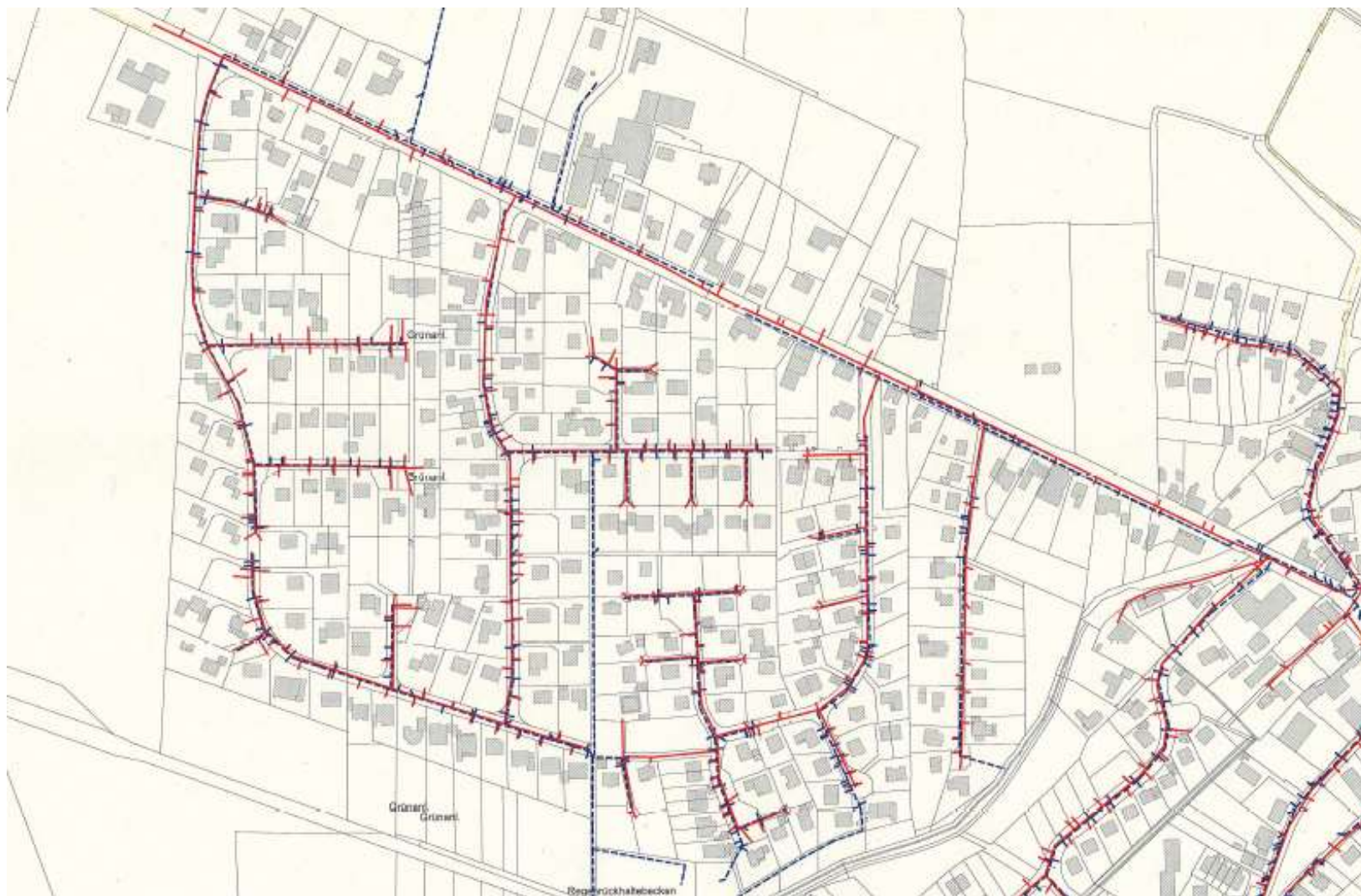


Product categories

- All washing and cleaning agents;
- Certain personal care product types with high release to wastewater: shampoo, body wash, bath additives, conditioner, soap, toothpaste, mouth wash, body lotion, hand cream, hair styling products, hair dye and make-up remover
- Products for the control of pests: plant protection products, disinfectants, wood preservatives, construction material preservatives, rodenticides, insecticides, repellents, embalming fluids, products against fleas and lice



Sampling site





Substances

- Analysis of 15 selected biocidal active substances:
 - Benzalkonium chloride
 - Benzisothiazolinone (BIT)
 - Carbendazim
 - Chloromethylisothiazolinone (CMIT)
 - Dichlorooctylisothiazolinone (DCOIT)
 - N,N-Diethyl-meta-toluamide (DEET)
 - Diuron
 - Icaridine
 - Octylisothiazolinone (OIT)
 - Piperonyl butoxide
 - Salicylic acid
 - Tebuconazole
 - Terbutryn
 - Tetramethrin
 - Triclosan