



KAUNAS
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TECHNOLOGY



HAZARDOUS CHEMICALS IN LITHUANIA- POTENTIAL CONTAMINATION IN EFFLUENTS

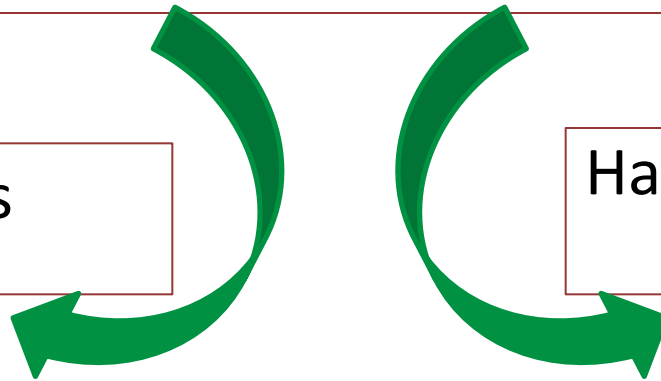
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Uppsala, 2013-09-23

Why chemicals?

Chemical substances – one of the resources used for production processes and incorporated into the composition of goods for consumption

Useful properties

Hazardous properties



Chemicals control

- Current developments:
 - REACH
 - GHS → CLP
- Special for the Baltic Sea:
 - HELCOM 
 - Baltic Sea Action Plan

Hazardous substances: what do we know?

- Information comes mostly from Sweden, Finland, Denmark, the Baltic Sea itself
- Very little information - Lithuania

~~Hazardous chemical substances are probably not a problem~~

Screening of dangerous substances in the aquatic environment of Lithuania

Lithuanian EPA, Finnish Environmental Institute, BEF, Centre of Environmental Protection Policy

Purpose of the study

- Where do they come from?



Which of the hazardous substances are used by which Lithuanian industry?



- What potential contamination in effluents?

Substances analysed

- Phthalates and their ethoxylates - DEHP
- Organotin compounds – TBT
- Phenols and their ethoxylates – NP, NPE, OP, OPE
- Brominated diphenylethers
- Chloralkanes – SCCP and MCCP
- PFOS and PFOA

Which of the hazardous substances are used by Lithuanian industry?

- Potential info sources –
 - ~~– Database on chemical substances and preparations – Infochema~~
 - ~~– IPPC permits~~
 - Chemicals registers at enterprises
 - Info on emissions

DEHP

Information on emissions

BaltActHaz project

What?

- 9 substances / groups investigated

Where?

- Discharges from 27 different industries
- Sewage from households, supermarkets
- Run-off from specific areas
- Filtrate from landfills (not treated at site)
- Discharge from some WWTPs

Emissions

<i>Industry /production</i>	Phtalates	Organotin compounds	Phenols	BDEs	Chloral-kanes	PFOS & PFOA
Pharmaceutical		✘	✘			
Household and industrial cleaning			✘			
Wood pulp and paper		✘	✘	✘	✘	
Paint	✘		✘			
Metal processing and galvanics		✘	✘		✘	
Electronic						
Printing houses			✘	✘	✘	
Cement/ asphalt/ concrete		✘	✘			
Textile		✘	✘	✘	✘	

Emissions

<i>Industry /production</i>	Phtalates	Organotin compounds	Phenols	BDEs	Chloral-kanes	PFOS & PFOA
Leather		✘	✘	✘	✘	
Panels/ boards		✘	✘			
Plastic	✘	✘	✘		✘	✘
Rubber		✘	✘		✘	
Shipyards	✘	✘	✘	✘	✘	
Construction materials	✘			✘	✘	
Semiconducrcors						✘
Oil refinery						
Laundries			✘	✘	✘	✘

Emissions

<i>Industry /production</i>	Phtalates	Organotin compounds	Phenols	BDEs	Chloral-kanes	PFOS & PFOA
Car washing	✘		✘	✘	✘	
Chemical						
Leakage from landfills	✘	✘	✘	✘		✘
Surface run-off from industrial areas			✘	✘		
Surface run-off from car repair/ car shredding		✘	✘	✘		
Effluents from supermarkets	✘	✘	✘	✘	✘	
Household effluents	✘	✘	✘	✘	✘	
WWTPs		✘	✘		✘	

Relevance to Lithuania

DEHP

High environm conc.

High conc in some industrial emissions

Emissions from households

Relevance to Lithuania

DEHP

TBT

High environm conc, mainly in the port

Found in biota

High conc in some industrial effluents

Relevance to Lithuania

DEHP

TBT

DBT

High environm conc.

Some findings in biota

*Emissions from many industries,
household, WWTPs, landfills*

Relevance to Lithuania

DEHP

TBT

DBT

MBT

High environm conc.,

however not found in biota

*Emissions from many industries, households,
WWTPs, landfills, surface run-off*

Relevance to Lithuania

DEHP

TBT

DBT

MBT

NP

High environm conc in some locations

*Emissions from many industries, households,
WWTPs, landfills, surface run-off*

?

Relevance to Lithuania

NPE

NP

MBT

DBT

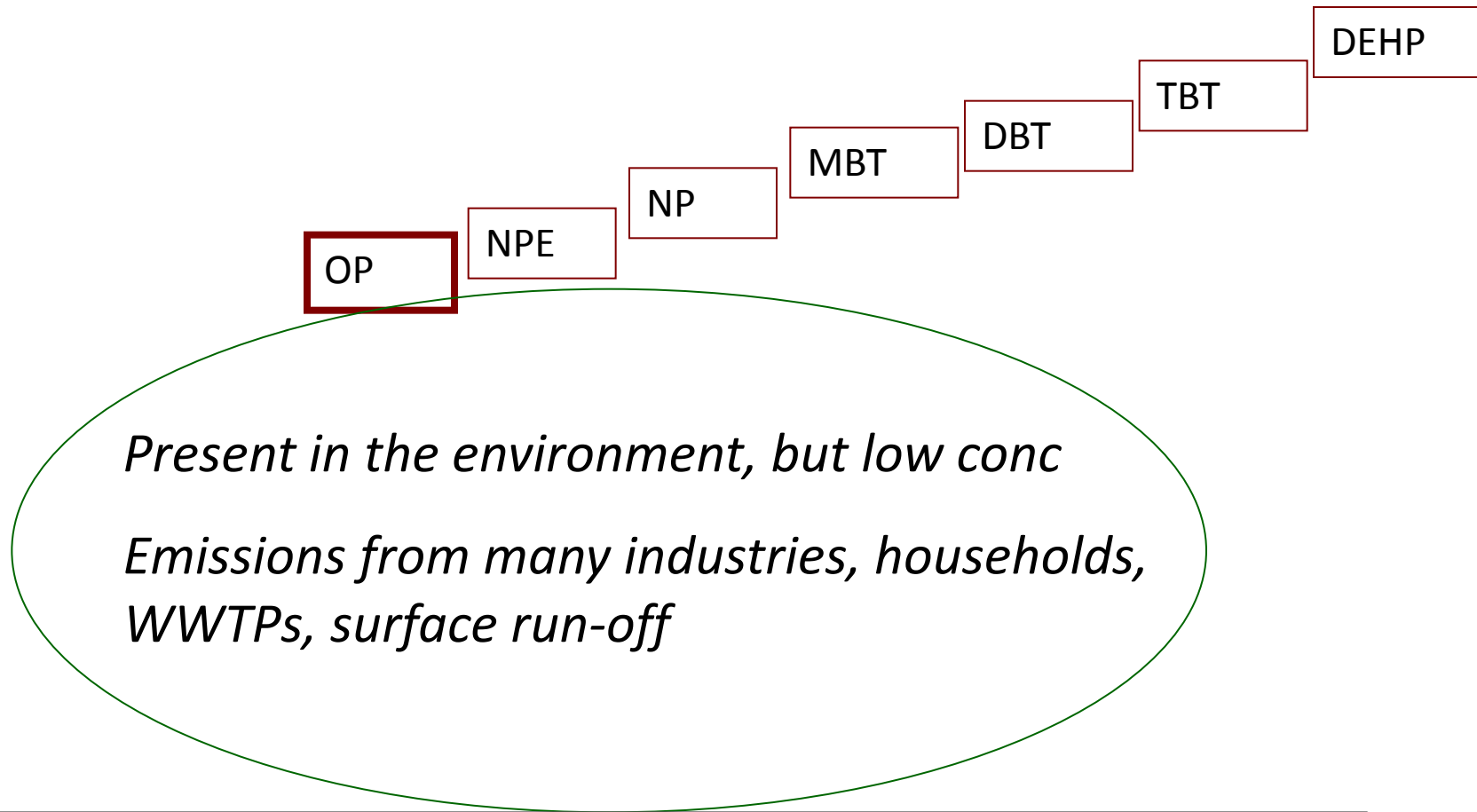
TBT

DEHP

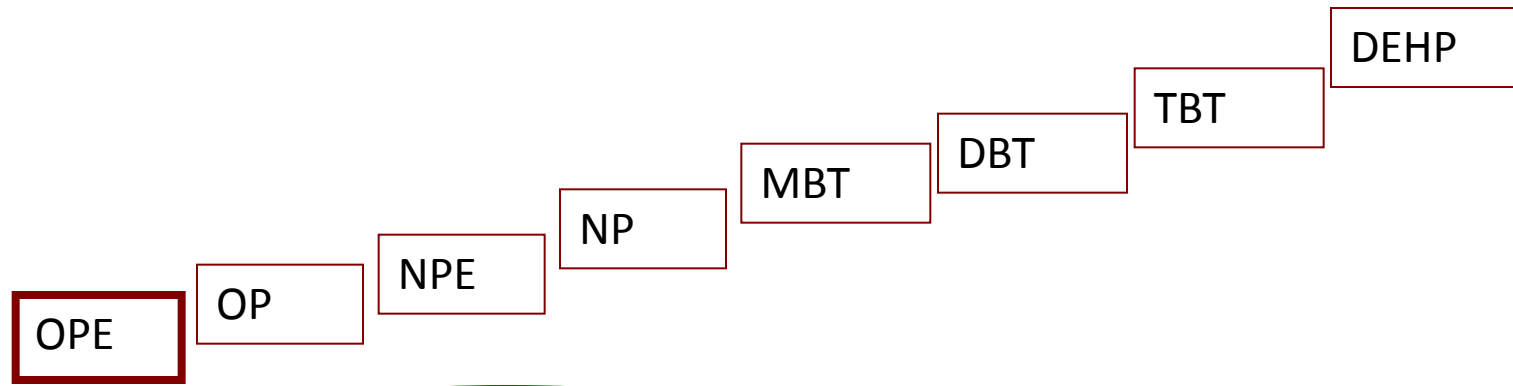
Not found in the environment and biota. (NPE ⇒ NP)

Emissions from many industries, households, WWTPs, landfills, surface run-off

Relevance to Lithuania



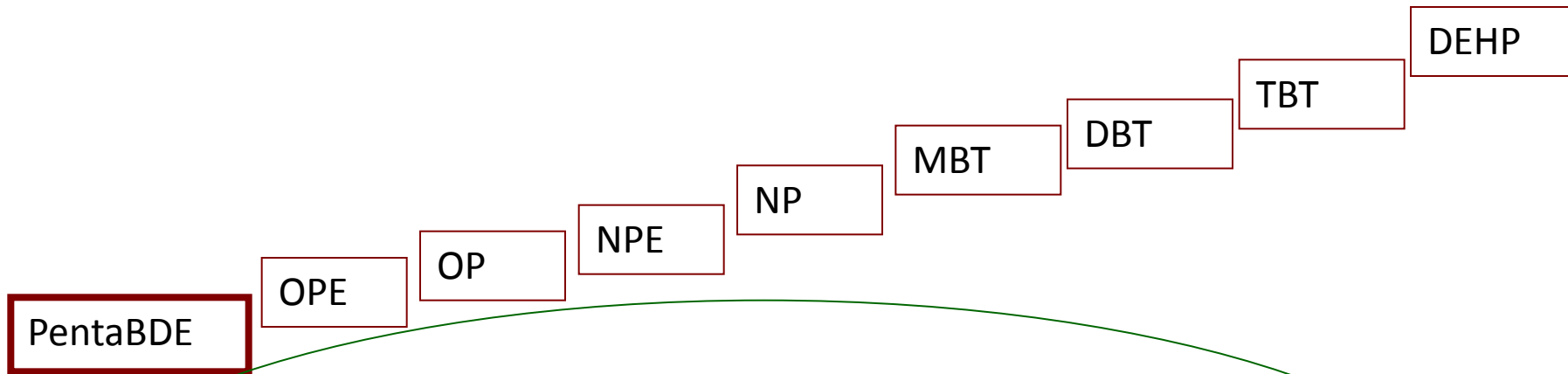
Relevance to Lithuania



Not found in environment + biota

*Emissions from many industries, WWTPs,
landfills, surface run-off*

Relevance to Lithuania

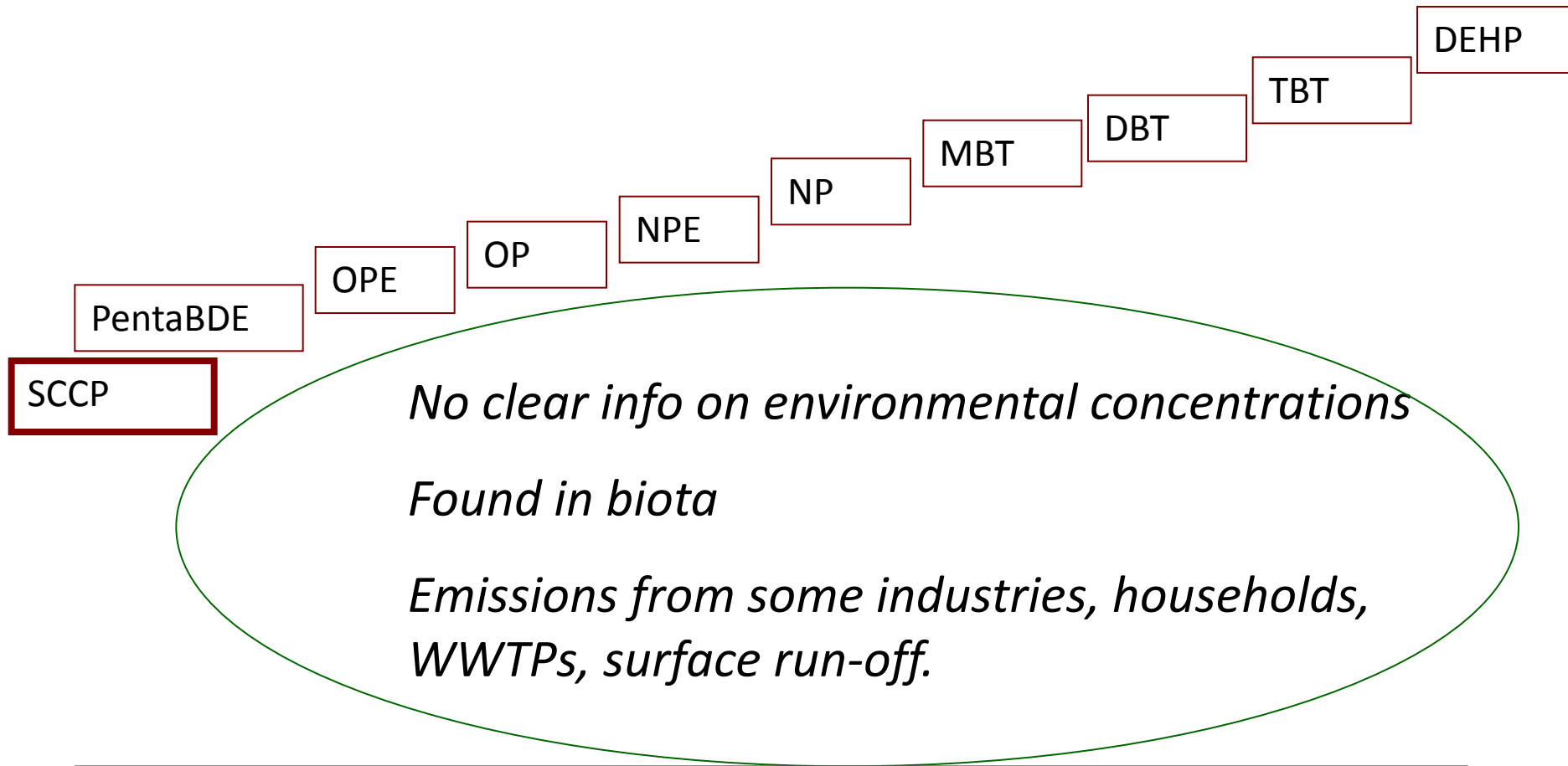


Found in biota, in some locations – in sediments

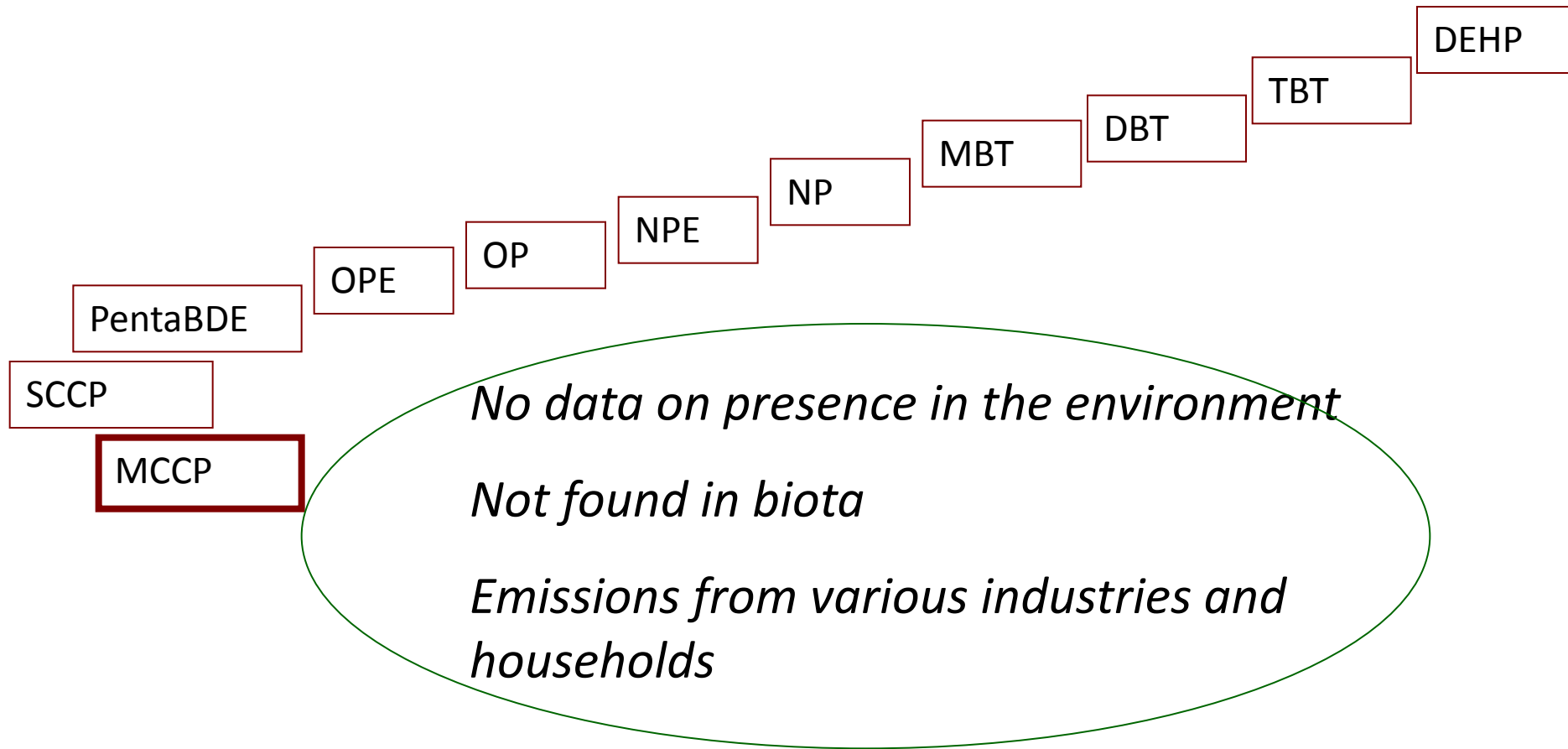
(Too high LOQ)

Emissions from various industries, households, surface run-off, landfills

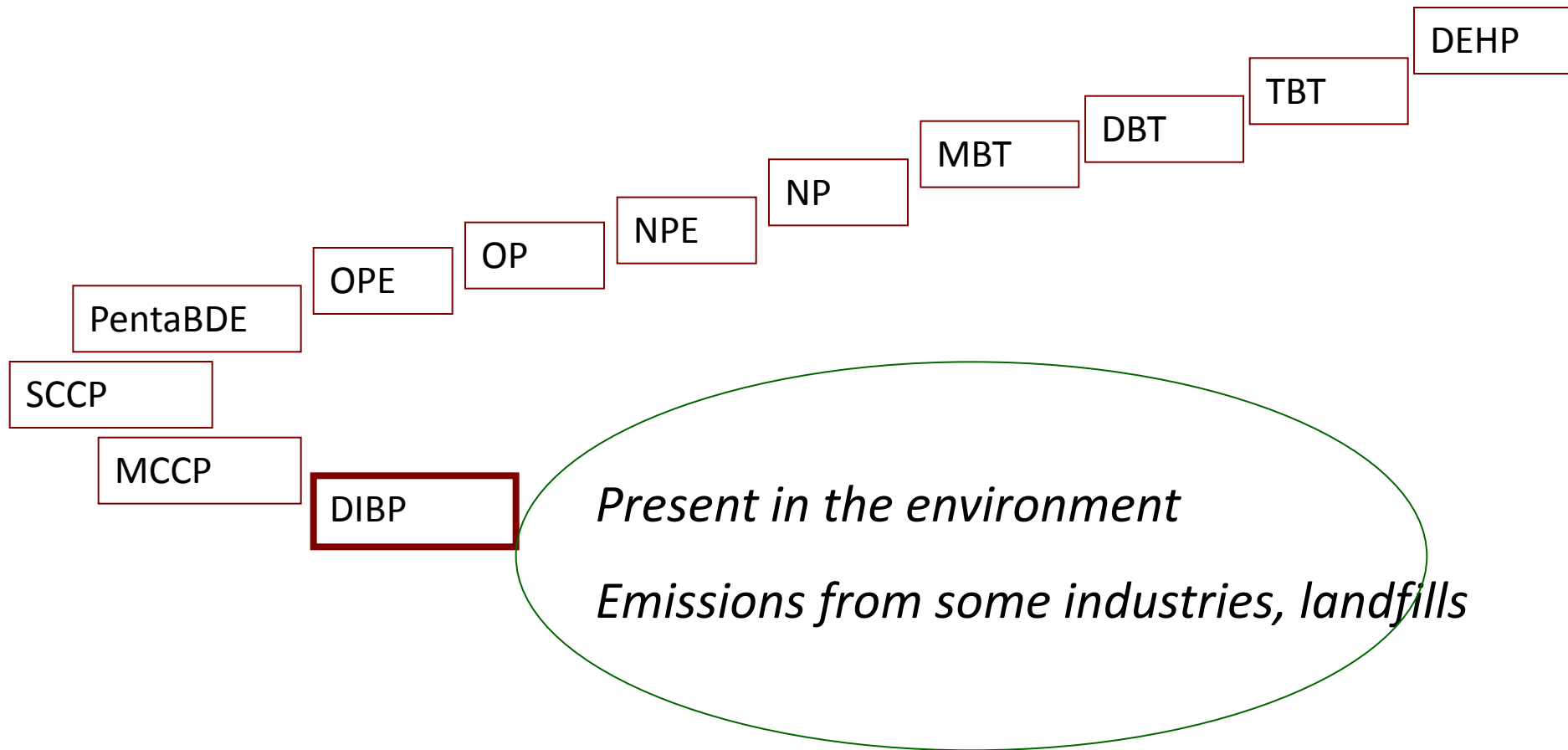
Relevance to Lithuania



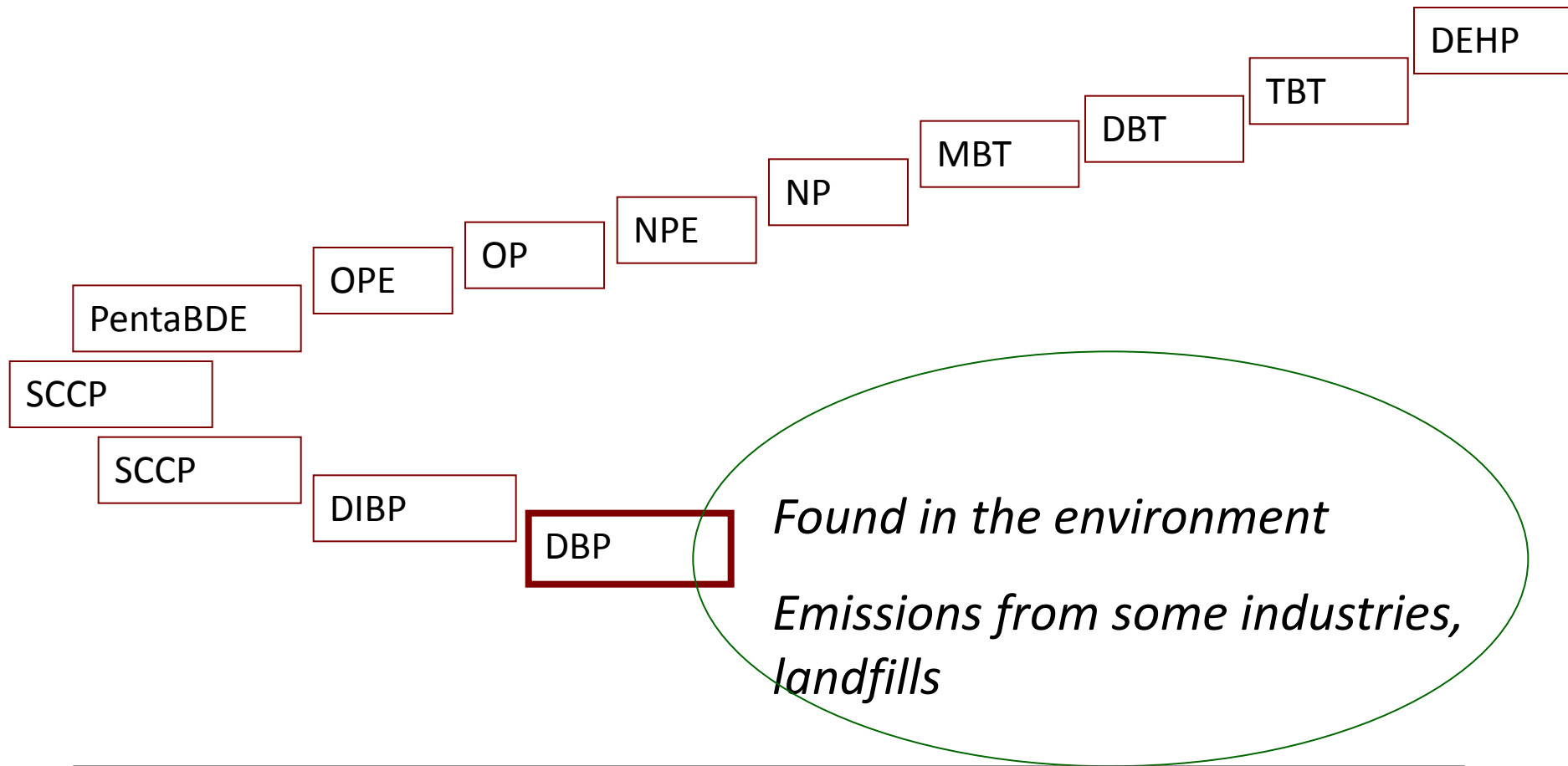
Relevance to Lithuania



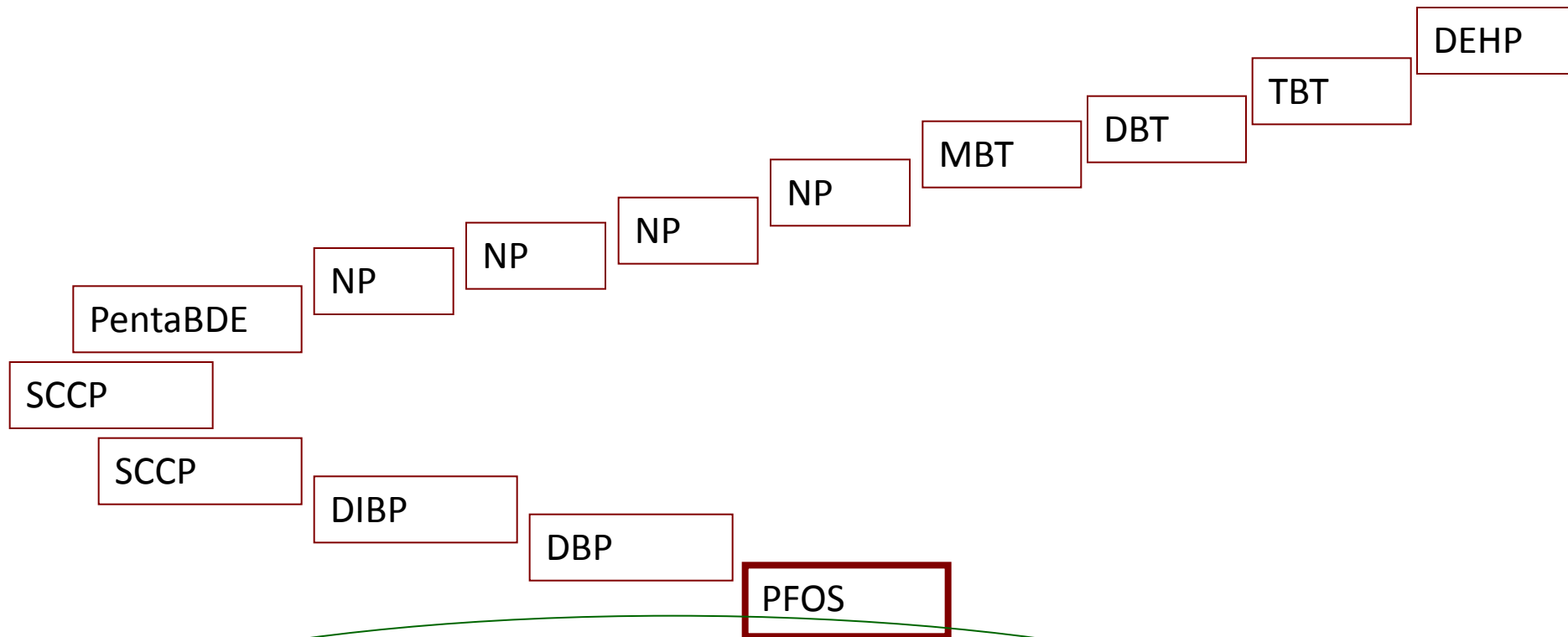
Relevance to Lithuania



Relevance to Lithuania



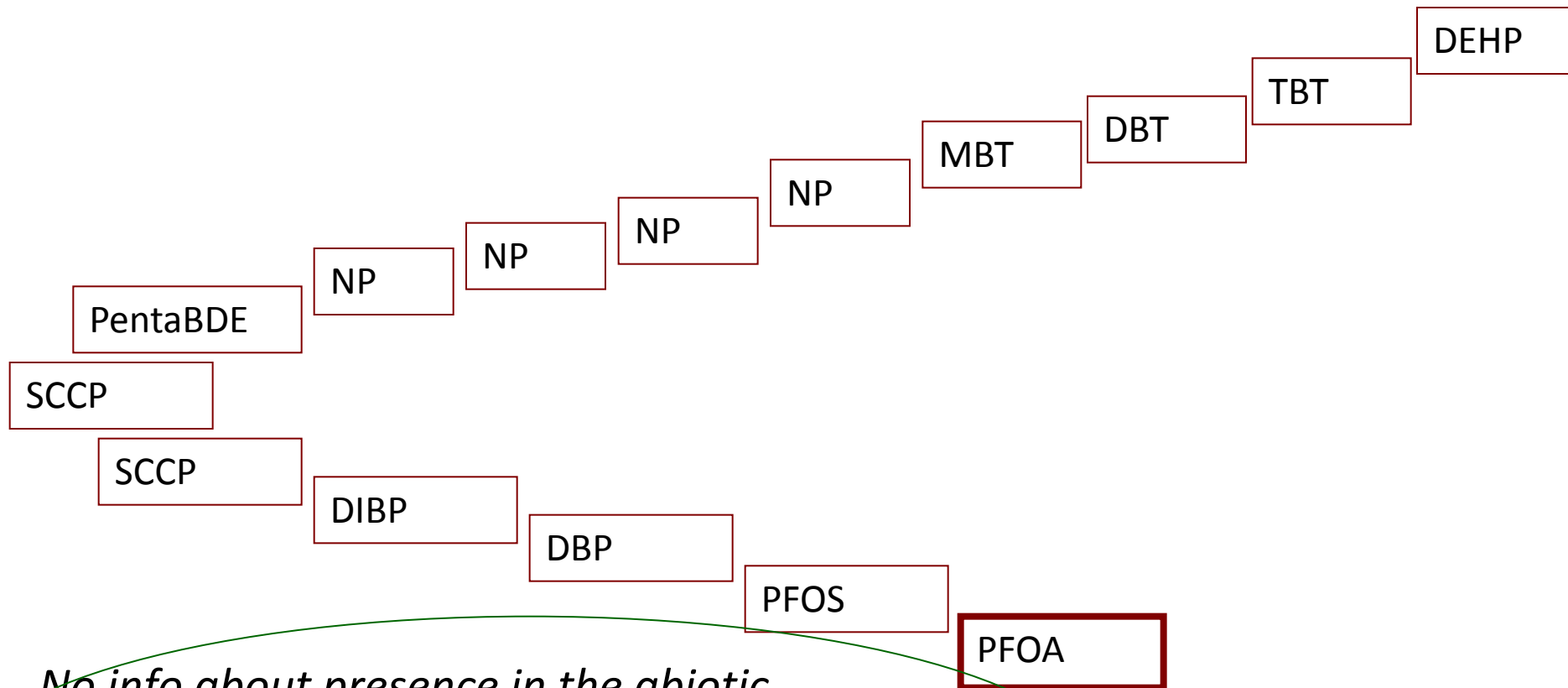
Relevance to Lithuania



No info about presence in the abiotic environment. Found in biota

Very few emissions from industries. Mainly present in leachate from landfills

Relevance to Lithuania

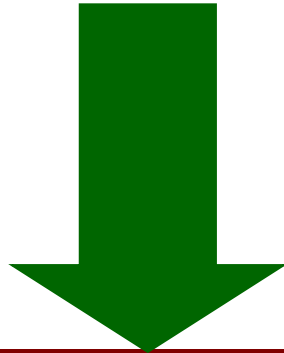


No info about presence in the abiotic environment. Not found in biota

Emissions from a few industries. Mainly present in leachate from landfills

Remarks

- Phtalates, organotin compounds and phenols are the most relevant hazardous chemical substances, still emitted from Lithuanian industries

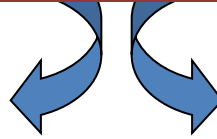


Measures required

Measures

- General

- Source control
- Regulatory
- End of pipe
- Other



- Substance specific

- TBT
 - NP, NPE
 - OP, OPE
 - DEHP
 - PBDE
 - SCCP, MCCP
 - PFOS/PFOA
-

End of pipe measures

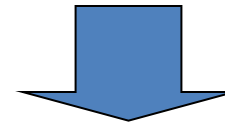
- Control / treatment of landfill effluents



Are treatment systems reaching the planned degree of removal?



Transporting landfill effluents to municipal WWTPs



-
- Advanced wastewater treatment



Maybe constructed wetlands?

Thank you for your attention!

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