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Findings of the project “Proposals for measures and actions for the reduction of pollution from hazardous substances for the Baltic Sea Action Plan”

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Project

- HELCOM contracted project
- Implemented 2007 by a consortium consisting of the BEF Group and the three consulting companies: Ökopol (Germany), eko-net.pl (Poland) and Hendrikson & Ko (Estonia)
- Project aim: to support the **elaboration of measures** for the reduction of emissions, losses and discharges of certain hazardous substances in the Eastern Baltic Sea Region
 - Measures included into the **Baltic Sea Action Plan (BSAP)**
- Project focused on the conditions in the new EU member states (Estonia, Latvia, Lithuania and Poland) and Russia (North West Region only)



Tasks

- Information search on use of target hazardous substances in selected sectors of industry in EE, LV, LT, PL and RU
- Information on emissions of target hazardous substances at company level by permit assessment and data bases assessment



Activities

1. Identification of substances
2. Identification of processes and sectors substances could be used
3. Use socio-economic statistics to analyze if sector is relevant for the country
4. Information on set up of national registers to analyze the production/use/market of relevant substances
 - Screening national product registers to identify uses of relevant industrial substances
 - Screening national pesticide and biocide registers to identify uses of TBT, TPhT and Endosulphane
5. Evaluation of IPPC (and other) permits regarding use of relevant hazardous substances
6. Direct communication with companies to identify use of relevant substances



1. Substances

- 11 (groups of) hazardous substances:
 - 4 brominated flame retardants (BFR's): penta-, octa- and decabrom diphenylether; hexabromocyclododecane (HBCDD)
 - Tributyl- and triphenyltin (TBT and TPhT)
 - Endosulphane
 - Short chain and medium chain chlorinated paraffin (SCCP and MCCP)
 - alkylphenolethoxilates: nonylphenolethoxilates (NP/NPEOS) and octylphenolethoxilates OP/OPEOS
 - Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)
 - Mercury (Hg) and Cadmium (Cd)
 - Dioxins-related substances



2. Products and Sectors

- Metal cutting fluids
- Electroplating and other metal surface treatment
- Industrial and institutional cleaners, including car care products
- Leather finishing chemicals
- Textile finishing chemicals
- Paper finishing chemicals
- Plastic and rubber compounds
- Construction chemicals (sealants and foams)



3. Socio-economic statistics

- Data was collected on manufacturing sectors to where it is most likely to find use of the target substances
- From the sector break down a conclusions can be drawn also related to use of hazardous substances
 - Manufacture of textile (including use of textile finishing products) play an important role in the Baltic States (EE 15,9%; LV 24%; LT 6,5%)
 - Wood and furniture production are relevant (EE 15,9% and 6,8%; LV 24%; LT 6,5%)
 - Latvia has large base metal production (7% of the manufacturing industries)
 - Estonia has large fabricated metal products production (8,7% of the manufacturing industries)



Breakdown of the manufacturing sector (gross value in %, EUROSTAT)

Sector	EU 25	EE	LV	LT
Manufacturing	100.0	100.0	100.0	100.0
Food and Beverages	14.0	18.3	26.0	33.8
Manufacture of textiles	1.8	5.3	2.9	3.9
Tanning, dressing of leather; luggage	0.7	0.6	0.1	0.4
Wood and wood products	2.0	15.9	24.0	6.5
Pulp and paper	2.7	1.7	1.2	1.0
Coke, refined petroleum prod., nuclear fuel	6.1	0.8	c	23.8
Chemicals and chemical products	10.0	5.6	2.7	5.0
Rubber and plastic products	4.0	3.9	2.9	4.7
Non-metallic mineral products	3.5	5.6	4.1	3.0
Basic metals	4.8	0.3	7.0	0.2
Fabricated metal products	6.7	8.7	4.0	3.7
Machinery and equipment n.e.c	8.8	3.3	2.8	2.7
Motor vehicles, trailers and semi-trailers	11.7	2.0	0.5	0.5
Other transport equipment	2.6	2.9	2.6	2.0
Furniture	2.7	6.8	4.5	4,9
Other	18.0	18.3	14.5	3,8



3. Manufacturing statistics

- Data was collected on chemicals manufacturing and trade
 - In Estonia (5,6% of the manufacturing industries) and Lithuanian (5,0%) chemicals industry are comparatively similar in terms of turnover
 - In Latvia the sector is by a third smaller (2,7%)
- Significant sub-sectors are
 - Basic chemicals in Estonia and Lithuania
 - Painting and coating in Estonia and Latvia
 - Pharmaceuticals in Latvia



Composition of the chemicals sector in the target countries (EUROSTAT, gross values in %)

Sub-sector	EE	LV	LT	EU 25 total
Total	100.0	100.0	100.0	100.0
Basic	37.9	7.8	85.0	44.1
Agrochem	c	c	c	1.6
Paints, coatings	39.4	20.3	2.9	6.6
Pharmaceuticals	c	45.7	c	29,9
Detergents	3.8	16.0	2.3	11,8
Other chemicals	10.8	4.2	2.0	8,5



4-6. Findings on single target substances

- Uses of target substances were investigated based on
 - product register information
 - permit screening (IPPC installation)
 - interviews with companies



Overview of permit screening

	LT	LV	EE
Total permits screened	7	33	20
Is it possible to identify environmentally hazardous raw material from the inventory	PARTLY	PARTLY	5
Have environmentally hazardous substance been identified in the permit	NO	PARTLY	4
Particular (environmentally hazardous) single substances addressed in the permit <ul style="list-style-type: none"> • Emission limit or • Control measures • Substitution 	NO NO NO	NO NO 4 permits	7
Particular (environmentally hazardous) preparation types addressed in the permit <ul style="list-style-type: none"> • Emission limit or • Control measures • Substitution 	NO NO NO	NO NO NO	NO NO NO
Action plan with regard to environmentally hazardous substances	NO	1 permit	NO

Overview on the interviews carried out (Formulators, suppliers, users)



	LT	LV	EE
No of suppliers (importers or formulators) identified related to the target products	43	20	20
Formulators in the countries in the figure above	25	10	10
No of users identified related to the target products		3	5
Companies contacted and interviewed			
• formulators	8	4	4
• users	0	3	3
Definite Information on use (or no use) of target substances received, including information on the source of information for the company	7	1	3 (2 paint manufacturers)



Findings on single target substances

Nonylphenols and Nonylphenoethoxilates

- Phasing out of NP/NPEOs and OP/OPEOs is progressing in all countries - driven by suppliers of chemical products located in Western European countries
- Remaining concentration levels in waste water may be related to residual, not restricted uses, illegal uses and amounts imported in textiles from non-EU countries
- Reported amounts for Latvia are about 2 t in 2004 and also in 2005 (*car care products and construction chemicals*)
- By permit screening NPE products have been identified in Estonian and Latvian *leather industry* and in *paint production*



Findings on single target substances

Brominated flame retardants

- The use of brominated flame retardants was not identified in any of the screened permits
- It was not reported in any of the registers
- This may be explained by the following:
 - BFR imported with articles do not need to be reported to registers and are usually not taken into account in environmental permitting
 - For DecaBDPE and HBCD there is no harmonised classification and labelling yet at EU level. Thus, suppliers of master batches or other flame retardant preparations are likely not to provide information on these components to their customers
 - Since these substances are not classified as dangerous, companies in the textile finishing and plastic conversion sector (e.g. polystyrene converters) may be unaware of the hazardousness of these products. In addition, plastic conversion is an activity that does not require an IPPC permit.



Findings on single target substances

SCCP and MCCP

- The use of short chain chlorinated paraffin was not identified in none of the screened IPPC and water permits
- Significant uses of MCCP have been identified in *polyurethane foams production* in Estonia and in *sealants production* in Latvia
- Small use of MCCP was identified in the Estonian *leather industry*



Findings on single target substances

PFOS substances

- Information on PFOS and PFOS related substances is hardly available at all
- Minor use of PFOA in an Estonian *metal processing enterprise* (indicated in emissions)
- According IPPC permit screening (no certain CAS numbers mentioned) could be possible concern in Estonian *textile finishing* (not indicated in emissions)



Findings on single target substances

Endosulphane and TBT

- Tributyltin and triphenyltin are being phased out and hence the concentration still found in municipal waste water all over Europe are remains of past production and use
- *Ship yards* may be still an actual source due to the removal of coatings in maintenance and repair of ships
- Endosulphane was not found in any of registers



Results on single target substances

- Significant use of MCCPs in isolation foams and sealants in Estonia and Latvia – emissions into water?
- Carry out screening measurements in WWTP related to brominated flame retardants
 - In case of significantly increased levels, search for local emission sources (e.g. textile finishing companies, plastic converters, waste treatment)
- Carry out pressure and source analysis related to the EU list of priority substances as soon as possible