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Generic Exposure Scenarios and Environmental Safety

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Ziel des Workshops

- **Erarbeitung von SPERCs für die Verwendung von Textilhilfsmitteln**
- **Wo liegen die Schwierigkeiten bei der Dokumentation / Begründung der SPERCs?**
- **Welche Hilfestellungen ist zur Erarbeitung von SPERCs erforderlich?**

Zeitplan

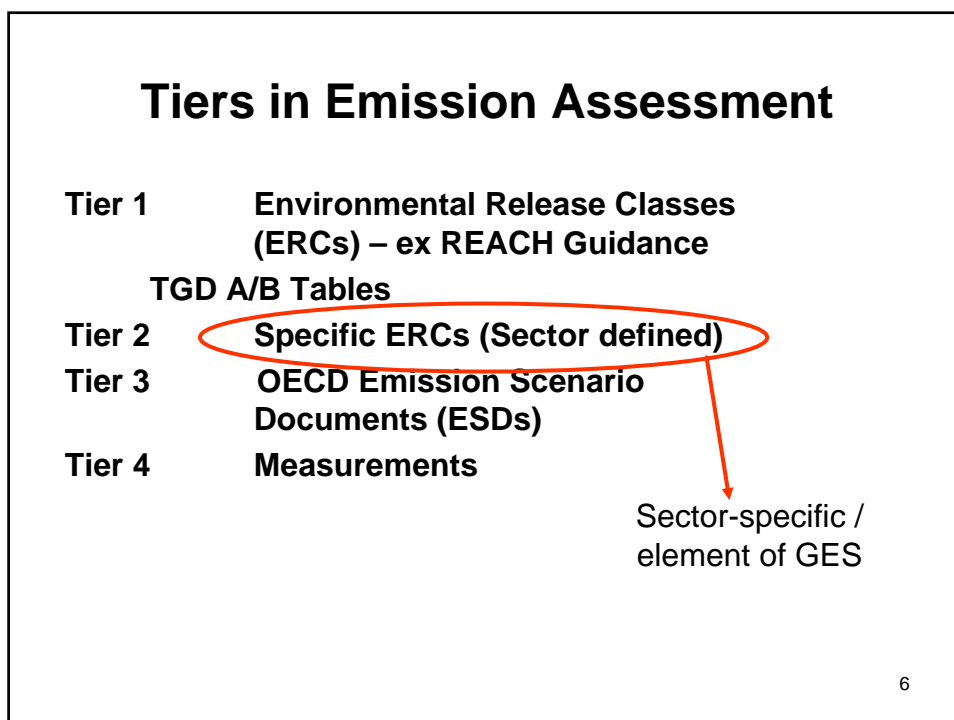
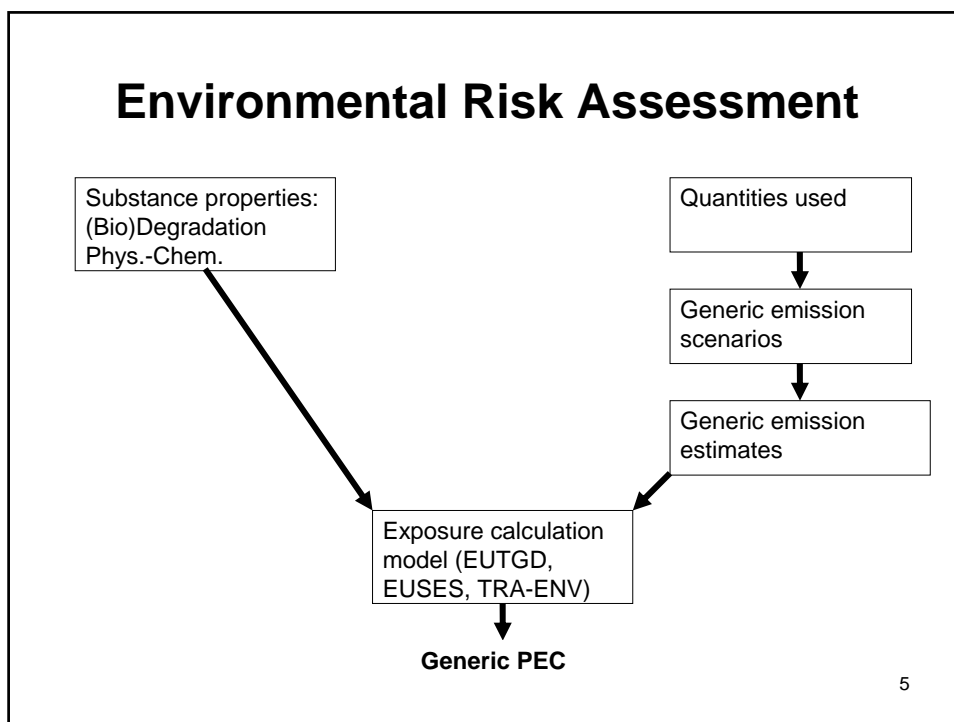
1	30	Einführung + Diskussion
2	60	Erarbeitung der Textil-SPERCs
3	15	Diskussion Feedback für Plenum

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What is a Generic Exposure Scenario?

- Describes the integrated RMMs and OCs relevant to the safe use (S, H & E) for an area of operation in industry
- Developed in a manner consistent with the REACH TGD based upon an initial mapping of use within the supply chain
- Used for targeting Exposure Scenario information to i.e. a sector applying the same set of conditions.

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What are Specific ERCs?

- **Specifications of the ERCs defined in REACH Guidance**
 - Realistic values of emission fractions in sector application
 - Consider RMMs typical in sector application
 - Can define typical quantities used in industrial uses
- **Defined by sector organizations for the sake of consistency.**
- **To be deposited in ES libraries – available for Manufacturers/Importers.**



TEGEWA SpERCs –

ERC	LC, Stage	level of containment	Type of use in life cycle stage (technical fate)	Release time in days per year ³	With STP:	Default release to air from process (%)	Default release to water (%)	Default release to soil	Consumption Water (m ³ /d)	Efficiency of on-site RMM (%)	Type of RMM ¹	Product use rate (kg/d)
4	Use	Open-closed	processing aid	365	Yes	95	100	n.a.	0.5	35% 98%	P&F	
5	Use	Open-closed	Into / Onto Matrix	365	Yes	50	50	n.a.	60	na	na	
6b	Use	Open-closed	Reactive processing aid	365	Yes	0.1	5	n.a.	0.5	35% 98%	P&F	

ERC	LC Stage	level of containment	Type of use in life cycle stage (technical fate)	Release time in days per year ³	With STP:	Default release to air from process (%)	Default release to water (%)	Default release to soil	Consumption Water (m ³ /d)	Efficiency of on-site RMM (%)	Type of RMM ¹	Product use rate (kg/d)
4	Use	Open-closed	processing aid	20	Yes/no	95	99	n.a.				
Level 1												
4.1	Use AISE	Open	Industrial cleaning	365	Yes	0%	100	n.a.			na	
Level 2												
4.1.1	Use AISE	Open	Metal Cleaning	365	Yes							P&F
4.1.2	Use AISE	Open	Textile washing									na
4.1.3	Use AISE	Open						n.a.	0.5	35% 98%		P&F
4.1.4	Use AISE					0%	100	n.a.	5	na		na
4.1.5	Use AISE			365	Yes	0%	100	n.a.	2	na		na
4.1.6	Use AISE		vehicle Cleaning	365	Yes	0%	100	n.a.	0.8	na		na

A.I.S.E. specific ERC – Industrial Use

Teil 2 – Dokumentation von SPERCs

Status of development of specific ERCs

- Examples have been developed by AISE, FEICA, TEGEWA, CEPE
- Guidance for developing specific ERCs to warrant quality and consistency is being drafted
- ECETOC opened dialogue with ECHA on specific ERCs



Documenting SPERCs

- CEPE – manufacturing of solvent-borne coating/paint (or any solvent borne preparation?)
- FEICA – application of a water-borne adhesive

Documenting SPERCs - Manufacturing of solvent borne coatings

	Characteristics of specific ERC	Type of Input Information	Processing of Input Info
Title of specific ERC	Manufacture of organic solvent borne coatings and inks		
Based on ERC	2 (Formulation of preparations)		
Scope	Formulation of organic solvent borne coatings and inks		
Use rates*	Safe use rate to be determined as result of the CSR	RCR obtained from risk characterization	

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Documenting SPERCs - Manufacturing of solvent borne coatings- Emission fractions

Emission fractions	1. To air: VOCs: - maximum 5% to air (< 1000t/a solvent) - maximum 3% to air (> 1000 t/a solvent) <i>Particulates:</i> 0.005% to air	Draft OECD Emission Scenario Document 'EMISSION SCENARIO DOCUMENT ON COATINGS INDUSTRY (PAINTS, LACQUERS AND VARNISHES)', June 2006	Reviewed and adopted from OECD ESD
	2. To wastewater/ sewer/watercourses: 0 % liquids and solids		
	3. To soil: 0% liquids and solids		

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Documenting SPERCs - Manufacturing of solvent borne coatings- RMMs

Type of RMM	VOC controls RMMs primarily are aimed at controlling emissions of VOCs at source, rather than at "end of pipe" to meet the relevant total emission limit value set out in section 17, Annex IIA, 1999/45/EC (SED). A wide range of RMMs are used to minimise emissions to atmosphere - use of closed storage facilities (e.g. bulk storage tanks, IBCs, drums) for VOC-containing raw materials - use of closed transfers of liquids from storage to production equipment (e.g. metered piped or pumped additions) - use of closed production equipment, with no extraction, except when opening vessels for additions/sampling etc
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RMM Efficiency

Efficiency of RMMs	VOC RMMs As the SED VOC emission controls are focused on controlling global emissions from the manufacturing plant, the performance of individual RMMs is not relevant – the overall efficiency of the total manufacturing process (process steps + RMMs) is a minimum either 95% or 98%. Particulate RMMs Bag and cyclone filters are typically rated at 99% efficient.		
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Factsheet 'Industrial Use of water-borne based adhesives' – Part 1

	Characteristics of specific ERC	Type of Input Information	Processing of Input Info
Title of specific ERC	Industrial use of water-based adhesives		
Based on ERC	5 – Industrial use resulting in inclusion into or onto matrix		
Scope	All industrial uses of water based adhesives		
Product use rates	Safe use rate to be determined as result of the CSR	RCR obtained from risk characterization	Consensus in sector
Emission fraction	To Air: 0% , to water: 0,2 % to water.	Application knowledge	Consensus in sector
Type of RMM	None		

Factsheet 'Industrial Use of water-borne adhesives' – Part 2

Narrative description / Justification of specific ERC	<p>Description: Water based adhesives are applied to solid substrates. Their function is to join the substrates. Hence the constituent substances remain in place, except for water, which is to evaporate.</p> <p>Justification: In the adhesive application, adhesive is purposefully placed onto a substrate. The adhesive is intended to stay in place. Hence, during the application process as such no adhesive is emitted to the environment. Residues formed during curing form solid residues which are disposed of as solid waste such that no emissions occur. For economic reasons the fraction of the adhesive remaining in containers and tubing of the application equipment is kept to a minimum. Equipment cleaning operations may involve water, in which case emissions to the water may occur. Specific knowledge in the sector was used to set a default worst case percentage of 0.2% of the sealant/adhesive to be emitted to the wastewater via cleaning operations.</p>
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Next Steps

- **Test draft guidance and fact sheet: Mid November**
- **Finalize draft guidance: Mid december**
- **Continue dialogue with ECHA**
- **Start rollout / capacity building: January 2009**
- **Start planning of database (GES libraries?)**

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Summary (I)

REACH constitutes a significant challenge. Industry needs to be well prepared to master the regulatory requirements while retaining the capacity to serve society's needs.



A lot of work has to be done...

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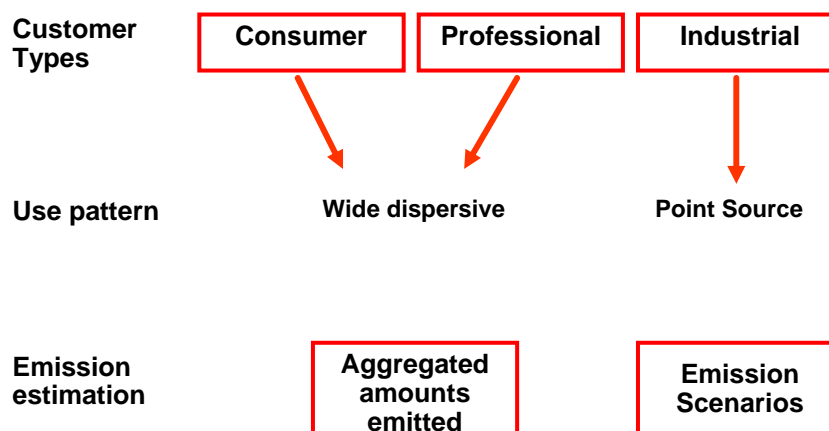


Summary (II)

... in order to avoid unpleasant surprises



Customer Types and Exposure: Assessment approaches



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Emission Scenarios for Point Sources

Tier 1 REACH Environmental Release Classes (ERCs)

TGD A/B Tables

**Tier 2 Specific ERCs (Sector defined)
OECD ESDs?**

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ERC	LC, Stage	level of containment	Type of use in life cycle stage (technical fate)	Release time in days per year ³	With STP:	Default release to air from process (%)	Default release to water (%)	Default release to soil	Consumption Water (m ³ /d)	Efficiency of on-site RMM (%)	Type of RMM ¹	Product use rate (kg/d)
4	Use	Open-closed	processing aid	20	Yes/no	95	99	n.a.				
Level 1												
4.1	Use AISE	Open	Industrial cleaning	365	Yes	0%	100	n.a.	5			na
Level 2												
4.1.1	Use AISE	Open	Metal Cleaning	365	Yes							&F
4.1.2	Use AISE	Open	Textile washing									na
4.1.3	Use AISE	Open						n.a.	0.5	35% 98%		P&F
4.1.4	U AISE					0%	100	n.a.	5	na		na
4.1.5	Use AISE			365	Yes	0%	100	n.a.	2	na		na
4.1.6	Use AISE		Vehicle Cleaning	365	Yes	0%	100	n.a.	0.8	na		na

A.I.S.E. specific ERC – Industrial Use

Specific ERCs for wide disperse uses												
ERC	LC, Stage	level of containment	Type of use in life cycle stage (technical rate)	In/ outdoor	release promotion during service life	Amount of substance used as input to emission calculation	Fraction used at main source	With STP:	Default release to air from process (%)	Default release to water from process	Default release to soil	Dilution to be applied for PEC derivation
8a	Use	Open-closed	Processing aid	In	na	10% M/l volume	2×10 ⁴	80%	100	100	n.a.	DF= 10 Regional; 25×10 ⁹ m ³ /y
8a.1	Use	Open	Cleaning Products	In	na	10% M/l volume	2×10 ⁴	80%	0	100	n.a.	DF= 10 Regional; 25×10 ⁹ m ³ /y
8a.2	Use	Open	Personal care products	In	na	10% M/l volume	2×10 ⁴	80%	0	100	n.a.	
8c	Use	Open	Inclusion into / onto matrix	in	na	10% M/l volume	2×10 ⁴	80%	15	1	n.a.	DF= 10 Regional; 25×10 ⁹ m ³ /y
8c.1	Use	Open	Adhesive-water-based	In	na	10% of volume	2×10 ⁴	80%	0	1	n.a.	DF= 10 Regional; 25×10 ⁹ m ³ /y
8c.2	Use	Open	Adhesive: solvent; non-aqueous	In	na	10% of volume	2×10 ⁴	80%	100	0	n.a.	
8c.3	Use	Open	Adhesive: non solvent, non-aqueous	In	na	10% of volume	2×10 ⁴	80%	0	0	n.a.	

Factsheet 'Metal treatment / coating' – Part 1

	Characteristics of specific ERC	Type of Input Information	Processing of Input Information
Title of specific ERC	Industrial use in 'Metal treatment / coating' operations		
Based on ERC	4 – Industrial use of processing aid		
Scope	Industrial uses in 'Metal treatment / coating' operations		
Product use rates	Water consumption rate: 5m ³ /d. The product use rate is obtained by multiplying with the substance concentration.	Expert judgement	Consensus in sector
Emission fraction	0% to air 100 % to water	EJ (Expert Judgement)	Consensus in sector

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Factsheet 'Metal treatment / coating' – Part 2

	Characteristics of specific ERC	Type of Input Information	Processing of Input Information
Type of RMM	Flocculation		
Efficiency of RMM	99% for metal cations 30% for other substances	Measurements Default value from Det. Reg.	Estimate based on measured data None
Narrative description of specific ERC	In 'Metal treatment / coating' operations metal parts are immersed in water baths, which contain etching, cleaning, coating products. With each metal parts a small quantity of bath solution is removed from the bath and via a cascade of rinsing steps emitted to the wastewater. Replenishing the bath solution needs to be occurs according to the water consumption rate. Substance emissions can be calculated if the substance concentration in the bath solutions is known. Alternatively, a safe substance concentration can be specified based on the values of the specific ERC.		

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Factsheet 'Industrial Use of non-water based adhesives' – Part 1

	Characteristics of specific ERC	Type of Input Information	Processing of Input Information
Title of specific ERC	Industrial use of 'Adhesives non-water based'		
Based on ERC	5 - Inclusion into or onto matrix		
Scope	Industrial use of adhesives		
Product use rates	100 kg/d	Expert judgement	Consensus in sector
Emission fraction	100% to air for solvents 0 % to water for other constituents	Expert Judgement	Consensus in sector

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Factsheet 'Industrial Use of non-water based adhesives' – Part 2

	Characteristics of specific ERC	Type of Input Information	Processing of Input Information
Type of RMM	None		
Efficiency of RMM	None	Measurements Default value from Det. Reg.	Estimate based on measured data None
Narrative description of specific ERC	The solvent evaporates quantitatively and gives rise to 100% emission to the air. The non-volatile constituents are captured in the solid matrix formed during curing. These residues are disposed of as solid waste such that no emissions result from production residues. Cleaning operations involving non-aqueous adhesives / sealants are performed with solvents. According to good industrial practice the cleaning solvents are collected. As a result, no emissions occur.		

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