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Change documentation of FEICA SPERC revision

Background

Specific Environmental release categories (SPERCs) have been developed in 2009 by adopting relevant release scenarios for the formulation, industrial, and professional uses within FEICA applications. These SPERCs were extensively used in 2010 registrations.

In 2010 German authorities reviewed the SPERCs of several industrial sector organizations. The identified shortcomings were discussed with industry, who committed improving the SPERCs. The main issue was the inconsistency between different sector groups and a lack of transparency.

In order to reflect improvement the factsheets were revised by the sector organizations generally by reformatting and adding more detailed background information to enable its transparent application. Furthermore the SPERCs were simplified to provide less complexity. While the previous SPERCs still remain valid, the new revised SPERCs have assigned new version numbers (v2) to discriminate between the different assumptions made in both, the previous and the revised version.

Changes FEICA SPERCs

For the **formulation phase** a total of five SPERCs were originally generated to describe emission releases from solvent-less/and solvent-borne adhesives (FEICA 2.1a; FEICA 2.1b and FEICA 2.1c) as well as water-borne adhesives (FEICA 2.2a and FEICA 2.2b). The following changes have been made:

Change		Rationale	Affected SPERC	
			old	new
1	The release information of release to air was simplified; distinction between vapor pressure was deleted	very small releases to air are considered worst case, irrespective of vapor pressure	2.1b.v1 2.1c.v1 2.2a.v1	2.1b.v2 2.1c.v2 2.2a.v2
2	Air emissions at large scale set to 0.0012 with obligatory RMM (efficiency 80%)	Large scale production need obligatory RMM	2.1b.v1	2.1b.v2
3	Small water emissions were added	Water emissions are very low but realistic	2.1a.v1 2.2a.v1 2.2b.v1	2.1a.v2 2.2a.v2 2.2b.v2
4	Revision of air emission treatment to provide a typical removal efficiency of (%) - set to "n/a"	No obligatory onsite RMM considered as there is a very small release to air. Worst case emission rates account for substance losses.	2.1a.v1 2.1c.v1 2.2a.v1 2.2b.v1	2.1a.v2 2.1c.v2 2.2a.v2 2.2b.v2
5	Add obligatory waste gas treatment, adsorption,	Type of formulation with highest potential for air	2.1b.v1	2.1b.v2

	incineration, etc. for large scale formulation of Solvent Borne Adhesives	pollution		
6	Adding production scale tonnage to SPERC title to distinguish between large and small scale production	Based on maximum M _{SPERC} for small scale operations separation at 1000t/a use volume is made	2.1a.v1 2.1b.v1	2.1a.v2 2.1b.v2
7	Addition of determinants	Request for CHESAR application	all	all
8	Re-formatting of SPERC structure	Adopt to harmonized structure	all	all

Table - Changes 'Formulation phase'

For the **industrial use phase** of adhesives four SPERCs have been generated for the application in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives (FEICA 5.1a and FEICA 5.2a) and in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives (FEICA 5.1b and FEICA 5.2b).

In the revised SPERC factsheet a new SPERC has been implemented *Industrial Use of Substances other than Solvents in water borne adhesives (FEICA SPERC 5.1c.v2)*. This SPERC was needed to account for increasing use of water-based adhesives.

Change		Rationale	Affected SPERC	
			old	new
1	Rename SPERC 5.2a.v1 and 5.2b.v1 to 4.2a.v1 and 4.2b.v1, respectively	Due to evaporation of solvents the use is related to ERC 4 (i.e. processing aids in processes and products not becoming part of articles)	5.2a.v1 5.2b.v1	4.2a.v2 4.2b.v2
2	Implementation of SPERC for substances used in water borne adhesives	Use of water borne adhesives may cause small releases	-	5.1c.v2
3	The release information of release to air was simplified: 98.5% for solvents	For solvents: RMM not obligatory, therefore worst case assumption for air release (98.5%)	5.2a.v1 5.2b.v1	4.2a.v2 4.2b.v2
4	The release information of release to air was simplified: 1.7% for substances other than solvents	For substances other than solvents: Worst case assumption for air release (1.7%)	5.1a.v1 5.1b.v1	5.1a.v2 5.1b.v2
5	Implementation of emission release for new SPERC	new SPERC release estimates based on OECD emission scenario No 22	-	5.1c.v1
6	Addition of determinants	Request for CHESAR application	all	all
7	Re-formatting of SPERC structure	Adopt to harmonized structure	all	all

Table - Changes 'Industrial use phase'

In the **wide dispersive professional and DIY applications** in total two SPERCs were originally created based on solvent and non-solvent applications (FEICA 8c.1b and FEICA 8c.2b). The revised SPERCs consequently follow the common use descriptor systematic in order to better relate to the ERC origin (ERC 8a and ERC 8c).

Change		Rationale	Affected SPERC	
			old	new
1	8c.1b.v1 rename to 8a.3.v1	Solvents are considered of processing aids (indoor use) which quantitatively evaporate during curing of adhesives/sealants (i.e. ERC 8a)	8c.1b.v1	8a.3.v2
2	8c.2b.v1 rename to 8c.3.v1	All other substances that do not evaporate to a significant extent upon curing of adhesive/sealants (i.e. ERC 8c)	8c.2b.v1	8c.3.v2
3	Change release fraction to water to 1.5%	Simplification of release factors according to worst case assumptions	8c.1b.v1 8c.2b.v1	8a.3.v2 8c.3.v2
4	Adjustment of air release to 98%	Correction based on OECD Emission scenario document	8c.1b.v1	8a.3.v2
5	Addition of determinants	Request for CHESAR application	all	all
6	Re-formatting of SPERC structure	Adopt to harmonized structure	all	all

Table - Changes 'wide dispersive professional and DIY applications

Table 1. SPERCs relevant for the manufacture of adhesives and sealants for processes without significant emissions to water during normal operational conditions

SPERC-Code	Title	Operational conditions	Typical substances	Change track
FEICA SPERC 2.1a.v2	Formulation of Solvent-less/Solvent Borne Adhesives - Solids	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials	Substances other than VOCs, solvents	3,4,7,8
FEICA SPERC 2.1b.v2	Formulation of Solvent Borne Adhesives – Volatiles (Large Scale)	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials	VOCs, solvents	1,2,3,5,6,7,8
FEICA SPERC 2.1c.v2	Formulation of Solvent Borne Adhesives – Volatiles (Small Scale)	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials	VOCs, solvents	1,4,6,7,8

Table 2. SPERCs relevant for the manufacture of adhesives and sealants for processes with emissions to water during normal operational conditions

SPERC-Code	Title	Operational conditions	Typical substances	Change track
FEICA SPERC 2.2a.v2	Formulation of Water Borne Adhesives – Volatiles	Process with efficient use of raw materials	VOCs, solvents	1,3,4,7,8
FEICA SPERC 2.2b.v2	Formulation of Water Borne Adhesives – Solids	Process with efficient use of raw materials	Substances other than VOCs, solvents	3,4,7,8

Table 3 - SPERCs relevant for the industrial use of solvents

SPERC-Code	Title	Operational conditions	Typical substances	Change track
FEICA SPERC 4.2a.v2	Industrial Use of Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives	Indoor use, negligible wastewater emissions as process operates without water contact Upon curing, substances evaporate to the ambient air.	VOCs, solvents	1,3,6,7
FEICA SPERC 4.2b.v2	Industrial Use of Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives	Indoor use, negligible wastewater emissions as process operates without water contact Upon curing, substances evaporate to the ambient air.	VOCs, solvents	1,3,6,7

Table 4 - SPERCs relevant for the industrial use of substances other than solvents

SPERC-Code	Title	Operational conditions	Typical substances	Change track
FEICA SPERC 5.1a.v2	Industrial Use of Substances other than Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives	Indoor use, product applied to a substrate to form a solid matrix Negligible wastewater emissions as process operates without water contact. Upon curing, substances are included into matrix without intended release to the environment	Substances other than VOCs, solvents	4,6,7
FEICA SPERC 5.1b.v2	Industrial Use of Substances other than Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives	Indoor use, product applied to a substrate to form a solid matrix Negligible wastewater emissions as process operates without water contact Upon curing, substances are included into matrix without intended release to the environment	Substances other than VOCs, solvents	4,6,7

FEICA SPERC 5.1c.v2	Industrial Use of Substances other than Solvents in water borne adhesives	Indoor use, product applied to a substrate to form a solid matrix Upon curing, substances are included into matrix without intended release to the environment. Wastewater emissions generated from equipment cleaning with water	Substances other than VOCs, solvents	2,5,6,7
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Table 5 - SPERCs relevant for the wide dispersive use of substances

SPERC-Code	Title	Operational conditions	Typical substances	Change track
FEICA SPERC 8a.3.v2	Wide dispersive Use of Solvents in Adhesives and Sealants	Professional and Consumer product use leading to emission of volatiles to air Upon curing, substances evaporate to the ambient air.	VOCs, solvents	1,3,4,5,6
FEICA SPERC 8c.3.v2	Wide dispersive Use of Substances other than Solvents in Adhesives and Sealants	Professional and Consumer Product leading to embedding substances into a matrix. Upon curing, substances are included into matrix without intended release to the environment.	Substances other than VOCs, solvents	2,3,5,6



The European voice of the
adhesive and **sealant industry**



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