Phase 1 Report

ECHA SERVICE CONTRACT "ASSESSMENT OF RELIABILITY OF SPERCS"

SCREENING ASSESSMENT OF SPERCS AND DEVELOPOMENT OF DRAFT SPERC REQUISITS

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Content

Tables

1 INTRODUCTION

The project aims to support the European Chemicals Agency (ECHA) and the REACH stakeholders in ensuring a high quality of environmental emission estimates conducted in chemical safety assessments (CSAs) under REACH in cases where specific environmental release categories (spERCs) are used. In particular, it should facilitate checking whether a given spERC or groups of spERCs are:

- applicable to an industry sector and a particular use of chemicals, including typical operational conditions (OCs) and risk management measures (RMMs);
- plausible regarding the release factors (RFs) proposed in relation to the OCs and RMMs and
- transparent and sufficiently well documented allowing all stakeholders to unambiguously select and use and/or check the use of spERCs in exposure assessments as well as implement them as communicated by exposure scenarios (ESs) or respective information in the safety data sheet (SDS)[1].

Furthermore, the project results should support industry associations in improving existing spERCs / spERC factsheets or developing new ones where sectors are not yet covered.

The current report describes the work process and results of the project's first phase conducted in May and June 2014.

The aim of the first project phase was to develop a thorough overview of the status quo regarding the general quality of the existing spERCs and to prepare a first draft of requisites indicating good quality spERCs.

Ten spERCs were selected for screening and the results of previous assessments performed by the contractor were brought into the same format. The assessment focus was set on:

- the description of the applicability domain;
- the plausibility of assumptions and argumentation regarding the OCs RMMs applied within a sector as well as;
- the plausibility of RFs in relation to the conditions of use (CoU).

[1] The focus of the second project phase is shifted towards transparency and sufficient documentation to allow the evaluators checking the plausibility of the spERC. This focus is set because the requirement of spERCs to be sufficiently well documented and justified may be in conflict with the requirement for simple and concise communication. Hence, in the second phase the main question is whether or not the information in the spERC (which is transferred to the CSR) is sufficient to demonstrate safe use of a substance.

2 WORK PROCESS OF PHASE 1

The following figure provides an overview of the milestones of the first project phase.

The kick-off meeting took place on April 30th 2014 as telephone conference. After the meeting, the work plan was adjusted and minutes provided with clarifications.

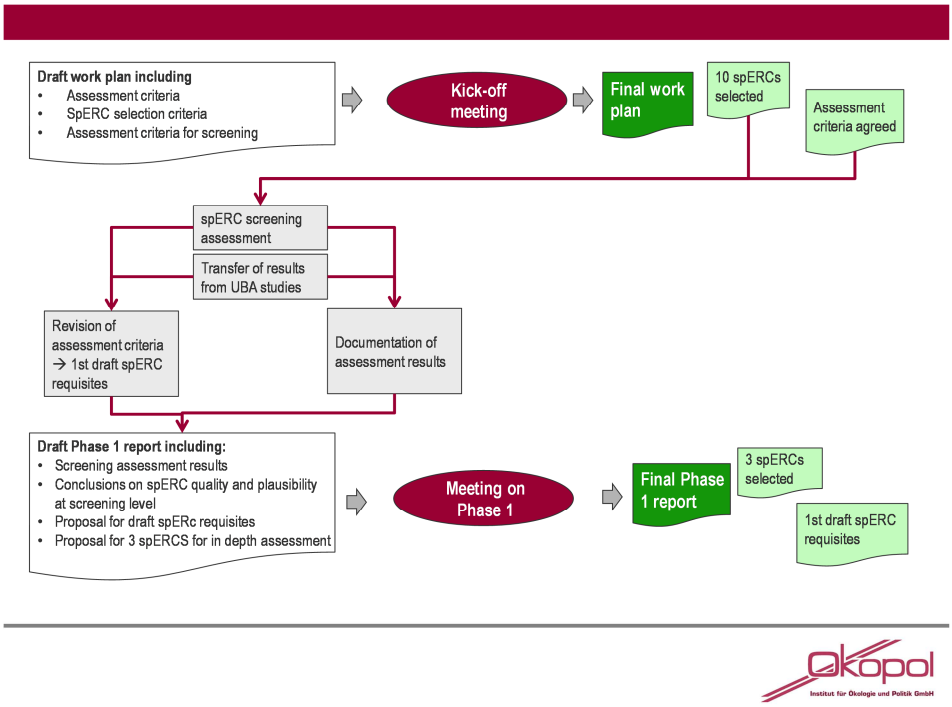

Figure 1: Overview of work process in phase 1 as agreed in the kick-off meeting

The assessment was carried out using the quality criteria outlined in Chapter 4. Checking consistency and understandability was carried out as “common sense analysis”. Checking plausibility and justifications was carried out using the project team’s knowledge of the various industrial and professional processes as well as consumer uses. Additional documents, such as OECD Emission Scenario Documents (OECD ESD) or Best Available Techniques Reference Documents (BREFs) and other sector information were used, if helpful. The RMMs identified in spERCs and their efficiencies were compared with the information in the RMM-library by the EU chemicals association CEFIC. The shortcomings in the documentation quality became obvious during these analyses.

The results of the previous studies on spERCs for the German Environment Agency (UBA) were transferred to the same format as the spERCs analysed for this project.

The screening results are documented in a standardised tabular format. In addition, flow text descriptions are provided introducing the spERC content,

highlighting best practice examples if identified, listing main shortcomings and concluding on the quality of the spERC at screening level (c.f. Annex I).

Based on the assessment results, conclusions are drawn on the overall spERC quality, common shortcomings and potential good or best practice. A proposal for spERCs to work on in the in depth assessment is also developed.

The spERC assessment at the same time was a test of the usefulness of the screening criteria outlined in Chapter 4. They were modified according to the experience in screening, and structured according to the CEFIC spERC factsheet (FS) format.

3 CRITERIA FOR SELECTION OF SPERCS FOR SCREENING

The screening criteria proposed in the work plan were not changed in the kick-off meeting and hence were applied to select the ten spERCs. The selection criteria are:

- At least one spERC of each industry association is analysed in order to create a complete picture of industry's work;
- Assessed spERCs cover broadly applied uses, because they are relevant to many actors;
- SpERCs contain specific OC and/or RMM descriptions to ensure that plausibility checking is possible;
- SpERCs are relevant for the environment; RFs do not equal to 100%;
- SpERCs contain RMM recommendations including efficiencies, if such spERCs are available from the industry association;
- All RF justification types are represented; however the more relevant ones (e.g. because measured data are used) may be preferred .

Double work is avoided by selecting spERCs which have not yet been assessed in previous studies[2].

[2] The results from the previously assessed spERCs will be included in the project by transferring the results into the screening documentation format. Potential additional aspects will be researched, if not yet identified in the previous work.

Table 1 shows which spERCs have already been analysed by Ökopol in the previous projects and the ones which are proposed for screening in this project.

Table 1: Overview of already assessed spERCs and spERCs for new assessment in Phase 1

Associ-ation	SpERCs already assessed (2010 or 2013)	spERCs proposed for screening assessment
AISE	Industrial use of water borne processing aids Wide dispersive use of cleaning agents (2010 and 2013)	Industrial use of metal salts in conversion coating **Reason**: cross-sector use, metals as relevant substance group, based on literature information
Cosmetics	--	-- **Reason**: low relevance for the environment, only formulation processes, similar to AISE
Concawe	--	-- **Reason**: covered by ESIG spERCs
ECPA	--	-- **Reason**: 100 % release, no RMMs, additional specific legislation exists, different types of RMMs are applied than in industrial uses (e.g. nozzles, spray zones, different equipment)
EFCC	Wide dispersive use of non-volatile substances in construction chemicals, outdoor (2013)	Industrial use of non-volatile substances in construction chemicals **Reason**: important sector, based on literature data
ESIG	Lubricants (industrial): solvent-borne (2010 and 2013)	Functional fluids (industrial): solvent-borne **Reason**: cross sector use, based on literature, qualitative reasoning and calculations, differentiated applicability domain and release factors
FEICA	Industrial Use of Substances other than Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives, (2013)	-- **Reasons**: spERCs are very similar, one analysis represents other spERCs
CEPE	Manufacture of water-borne coatings and inks (2010)	Professional application of coatings and inks by spraying (indoor use, volatiles) **Reason**: professional use, common and cross-sector use, differentiated spERC, based among others on literature and expert judgement
ECMA	Cross-check with Eurometaux (2013)	-- **Reason:** already assessed; only one spERC exists
IFRA	--	Formulation of fragrance compounds at small sites **Reason**: Association not yet covered, differentiated applicability domain, based on industry survey data, differentiated factsheet
ATIEL	--	Industrial use of lubricants in high energy open processes **Reason**: Association not yet covered, developed in bottom-up and grouping approach, based on survey data, expert judgement and calculations according to OECD ESD.[3] Consumer use of lubricants **Reason**: coverage of a consumer use
ACEA	Application of liquid water-borne spray coatings, volatile lead substance with water solubility > 10 mg/l (2013)	Industrial sanding operations for applied coatings with wet sanding dust collection **Reason**: process relevant for waste stage, cross-sector use, use of measured data from survey
Euro-metaux	Use of metals and metal compounds in coating (2010 and 2013)	Industrial use of metal compounds in plastics and rubber industry sector **Reason**: broad OC definition, RMMs from BREFs, use of measured data from risk assessments, differentiated spERC
ETRMA	Formulation and industrial use of materials resulting in inclusion on a matrix (2010)	Formulation and industrial use of materials resulting in inclusion on a matrix **Reason**: assessment of 2010 was not so deep but resulted in "best spERC justification"; this should be further explored in this project

[3] The spERCs by ATIEL are not developed for the use of registrants; however they were included as the bottom-up development approach targeted at formulators should be analysed.

4 QUALITY CRITERIA FOR SCREENING ASSESSMENT

The information in the factsheets should be consistent and understandable, plausible and justified as well as sufficiently documented. In the following, the understanding of these four items is explained by means of indicators. In Table **2** these are concretized for the different factsheet sections.

4.1 General description of quality criteria

4.1.1 Indicators for Consistency and Understandability

Consistency is to be ensured between all information i.e. within factsheet sections as well as between different factsheet sections.

- There are no obvious contradictions;
- Information on coverage, OCs and RMMs are only presented once and in clear and concise wording[4];
- No undefined terms are used; if undefined standard phrases, e.g. from EUPHRAC are used, it is explained in the context of the spERC what they mean;
- The wording is simple and sector language is only used if intuitively understandable to any actor;
- If sub-spERCs are contained in a factsheet, the OCs and RMMs should be the same for all sub-spERCs. The differentiation of a sub-spERC should be at the level of substance functions or properties;
- The release factors are to include the specified RMMs;
- After reading the factsheet the process / use addressed by the spERC is clear to the reader; there is no unambiguity.

Indicators for Plausibility and Sufficient Justification

The aspects “plausibility” and “sufficient justification” mainly apply to the relationship between quantified release factors and operational conditions as well as efficiency values and risk management measures. However plausibility may also be relevant regarding the relation between any of the factsheet sections[5]. The following indicators mainly address the former aspects.

- The link between the value of the (initial) release factor(s) and the conditions of use is explicitly described and can be followed by common sense;

[4] Doubling occurs with use descriptors. The section “narrative description” should not double but either be more general or more specific than the other sections in the factsheet and provide additional useful information.

[5] The use of the product type “textile finishing agent” may e.g. not be plausible, if the spERC only covers processes in the construction sectors.

- An analysis of the relationship between all information on OCs and RMMs reveals no contradictions;
- Information on type of RMM technique, its operation and usability are provided. They are to ensure the specified efficiency is achieved for the different substances covered by the spERC. There are no contradictions to information in the CEFIC RMM library or, if so, these are justified;
- Extrapolations are made explicit; parameters allowing cross-reading of information, methods or values are supported with clear argumentation;
- Information sources can be traced;
- Consequences of changing a parameter for the other (interlinked) conditions and the release factors are described[6].

Indicators for the Documentation

The documentation should in general allow any actor to fully trace all primary information and understand all assumptions and calculations upon which the spERC is built. As most spERC users are not expected to verify a spERC, the information may partly be provided in Annexes to the factsheet or in separate background documents.

- Information based on literature:
  - references are complete and the original information can be traced without problems[7];
  - similarity of CoUs in the spERC with the literature sources are discussed, in particular if information from different sectors is extrapolated;
  - if possible, raw data in the literature source is quoted and discussed[8].
- Information based on empirical data / industry surveys / databases
  - The information base is characterized regarding data collection (methods), representativeness of sample, selection of relevant data, explanation of confidentiality concerns;
  - Data processing for use in the spERC is documented, methods and calculations are explained;
  - If information is (partly) CBI, verification options for authorities to be provided.
- Information based on logical arguments
  - The argumentation is complete and includes all aspects of the use under normal conditions;

[6] This could relate to the nature of a change of release factors if operational conditions are changed (e.g. the re-use of processing water would decrease the release factor).

[7] This includes that information sources are freely available on the internet or from the sector association.

[8] According to the ECHA guidance, OECD / EU ESDs are regarded as valid information source and not questioned, although raw data is usually not included. The A- and B-Tables are not accepted as valid information source for release factors.

- o "Zero" or "irrelevance" of emissions is explained in relation to the total use / emitted amount;
- o Physical-chemical or other relevant data supporting the logical argumentation is presented.

4.2 Assessment indicators in relation to the factsheet structure

The following table lists the factsheet sections (Column 1) and their content according to the CEFIC guidance (Column 2). For each section quality indicators for the assessment are provided in groups (Column 4) and according to the three focal areas applicability domain, OCs and RMMs (Column 3).

The indicators will be used (potentially after revision to take account of the discussion in the kick-off) in the screening assessment. If during the assessment further aspects or indicators appear to be useful, the table will be amended. Table 2 will be used as input to Phase 2 for deriving spERC requisites.

Table 2: Assessment indicators regarding applicability domain, OCs and RMMs in CEFIC factsheet structure

Section	Content according to CEFIC (partly shortened)	Relevant for[9]:	Assessment
Title of spERC	Short title of spERC	Applicability domain	Consistency and Understandability: • Unambiguous, concise, • "Heading" in relation to "Scope" • No contradiction to underlying ERC • In line with systematic of short titles being developed by ENES
		OCs	Consistency of "process indicator" if used in short title
		RMMs	RMM information only in exceptional cases spERC
SpERC code	Code of SPERCs	Not under assessment in this project	
Scope	Limitations of coverage compared to ERC relating to: • User groups • Substance groups or functions • Types of products • Processing conditions • Exclusion of not covered conditions or processes	Applicability domain	Consistency and Understandability: • Concise, general and simple description of coverage • Main emission determining OC mentioned • Specification of user group, substance domain[10] and product groups • Statement on coverage of cleaning and maintenance • Exclusion of substances, products, users, products or processes not covered
		OCs	Consistency and Understandability: • Same wording of "core" OCs with "Operational conditions"
		RMMs	If RMMs are specified: consistency and same wording with "Obligatory onsite RMMs"
Related use descriptors[11]	SU, PCs, PROCs or ACs if relevant	Applicability domain	Consistency and understandability: • Information in "Title" and "Scope" are reflected by UDs; • PROCs may address more specific processes than in "Title" and "Scope"

[9] In this column it is specified regarding which of the three focal assessment areas (applicability domain, operational conditions and risk management measure) the fact sheet section is analysed

[10] Information on applicatbility relating to substance domain could also be specified by differentiated release factors (e.g. Vp or solubility) "Release factors"

[11] The use desriptors should double information in other sections (standardisation) but they should not add information (e.g. other processes than already mentioned or other product types than listed in the scope)

Section	Content according to CEFIC (partly shortened)	Relevant for[9]:	Assessment
		OCs	Consistency and Understandability: • PROCs reflect "Operational conditions"
		RMMs	Not applicable
Operational conditions	Clear description of the operational conditions that determine the emission. Specification of concepts such as "efficient resource use" by quantified indicators or qualitative conditions	Applicability domain	Consistency with "Title" and "Scope"
		OCs	Consistency and Understandability: • Simple, concise and understandable information • Consistency with prior sections Plausibility and Justification: • Information fits to justification (type of information, completeness, level of detail) • Clear relation of OCs to size of RFs is provided • OCs are State-of-the-Art Documentation: • Background information is provided • Assumptions and limitations are explicit and explained.
		RMM	Not applicable
Obligatory onsite RMMs	Clear description of risk management measures that are to be applied and the existence of which is assumed in the release factors. "no RMMs needed" to be explicitly stated, if release factors apply without any RMM	Applicability domain	Not applicable
		OCs	Plausibility and Justification • RMMs fit to main emission pathway(s)
		RMMs	Consistency and Understandability • Simple, concise and understandable information • Statement if RMMs are not needed Plausibility and Justification • RMMs fits to substance domain, product group and OCs • RMMs are State-of-the-Art Documentation • Information source is provided
Substance use rate	Value of use rate; can be replaced	Not under assessment in this project, because information is usually output of CSR	
Days emitting	Value of emission days	General assessment	Plausibility and Justification • No confusion with working days of workers (e.g. 220) • Correspond to average typical number of days where the substance is used, e.g. as outlined in a background document[12] pertaining to the spERC FS
Release factors (air, water, soil, waste)	Numeric value Justification of value by reference to literature or methods. Direct link to related documents.	Applicability domain	Not applicable
		OCs	Plausibility and Justification • Value is plausible in relation to specified OCs • Justification refers to OCs and/or literature • Method of RF derivation is described • Differentiation according to substance properties is plausible (if applied)
		RMMs	Not applicable
Optional RMMs for iteration	RMMs not considered in RF or obligatory RMM.	Not under assessment in this project, as information is optional and supplied for iteration	
Narrative description	Short and concise flow text description. Relevant items to be specified: Full process	Applicability domain	Consistency and Understandability • Description is concise and simple; supports the overall understanding of the applicability domain (doubling may be useful here) • Consistent with "Title" and "Scope"

[12] The production days are not necessarily the same as the emission days, as the substance may not be used on all production days. In addition, differences in emission patterns may occur in case chemicals are used in baths which have a continuous emission (routine operation) and an irregular emission when the bath content is changed and discharged to the sewage treatment plant. Furthermore, differences emission days may occur if a spERC covers process auxiliaries and substances intended to be included in a matrix.

Section	Content according to CEFIC (partly shortened)	Relevant for[9]:	Assessment
	• Whether or not cleaning of equipment and side activities are covered. • Conditions regarding waste management and wastewater discharges • No justification should be included.	OCs	Consistency and Understandability • Description is concise and simple • Description supports the overall understanding of which processes are covered, including potentially existing sub- and auxiliary processes • Additional useful information on the OCs if not provided elsewhere in the factsheet
		RMMs	Consistency and Understandability • Description is concise and simple • Description supports the overall understanding of which RMMs are obligatory (and why), including potential alternatives • Additional useful information on the RMMs if not provided elsewhere in the factsheet • Additional information on waste management, if relevant
Scaling	Reference to the CEFIC guidance	Only used to understand spERC or if particularly good example	
Appendix	Determinants for use in CSR and CHESAR in table	Only consistency is assessed	Consistency and Understanding • Information in Appendix corresponds to information in factsheet

5 SCREENING ASSESSMENT OF SPERCS

5.1 General information on the screening assessment

The first phase of the project consisted of a screening assessment of the spERC quality. Ten spERCs were selected for new assessment in this project and the results of prior assessments of nine spERCs were transferred to the assessment format[13].

The analyses were carried out as document analysis using the above described quality criteria. Apart from a thorough reading of the spERC factsheets, the RF-values derived from literature of some spERCs were researched. Furthermore, background documentation of spERC factsheets were screened, if available. In the first phase, no contacts with the spERC developers were made, except for requesting whether up-dated spERC versions are available as compared to the last UBA project on spERCs assessment or if additional information was referred to in the factsheet which was not easily available on the website.

The factsheet sections “Substance use rate”, “Appropriate RMMs that may be used” and “Scaling” were not assessed, because they are normally subject to iterating the CSA and hence do not influence the CSA using the basic spERC information. The number of emission days was only analysed regarding general plausibility.

[13] So for 19 SpERCs/sub-spERCs the results are presented in Annex I of this report.

A brief description of the analysed spERCs is provided in the following and the detailed results are provided in tabular format in the separate Annex I to this report.

5.2 Description of analysed spERCs

5.2.1 ACEA

Two spERCs by ACEA were analysed; one on the use of liquid spray coatings and one on sanding of cured coatings. In the spERCs by ACEA, the applicability domain is described by process types and the nature of a RMM to water; the substance domain may be limited, too. The OCs include long background text which contain among others information on the RF derivation, used substances but do not specify the conditions how the main process is carried out. RFs to air are not transparently justified with data whereas releases to water are based on industry data. Information on RMMs differs in the two spERCs, with efficiency values provided only for the sanding spERC.

ACEA appears to have a different understanding of OCs and RMMs than suggested in ECHA's guidance[14]. This makes the understanding of the factsheets partly difficult.

The spERCs include a transparent documentation of the calculation of RFs to water and several detailed descriptions of the process and applied RMMs. However, the information is not sufficiently well organised in the different sections and texts are partly long and difficult to understand. The base data for the RF derivation is missing and justification of some RFs is not fully comprehensible.

The spERC could be easily improved regarding the consistency and understandability. The RF derivation could be worked on regarding all emission pathways and the question of how confidentiality can be assured if industry data is used to derive RFs.

5.2.2 AISE

Three spERCs by AISE were analysed: Use of metal salts in conversion coating, use of water borne processing aids and wide dispersive use (wdu) of cleaning agents.

The applicability domains of AISE spERCs are usually broad and defined with process examples, information on the emission pathway or existence of RMMs to water and the substance domain. The spERC on wdu is characterized by the product and user groups. The OCs are described with general parameters such as location of use, the existence of water contact and the degree of

[14] ECHA: Measures primarily aimed at reducing exposure are RMMs; measures which optimize processing and raw materials use and – as a „side-effect" also reduce emissions and/or exposures are OCs.

volatilization. RFs are justified with logical arguments. RFs to waste are usually not provided. AISE provides information on RMMs with efficiency, if relevant.

The spERCs have fairly broad coverage and information on operational conditions is fairly general. Hence, it is questionable if the emissions of all uses falling under the applicability domain of the spERC are correctly described with the given RFs. This could not be checked in the screening assessment.

5.2.3 ATIEL – ATC

The ATIEL spERCs are mainly addressed to formulators developing information on safe use for their mixtures. Two spERCs were analysed: Industrial use of lubricants in high energy open processes and consumer use of lubricants and greases.

The applicability domain of the spERCs is explained with process or use examples. The substance domain is limited to “typical constituents of lubricants and metal working fluids”. The operational conditions are generic and specify if the process is water or oil based (industrial use) or the main emission pathways (consumer use). The release factors to water are based on information from an industry survey. The release factors to air are derived from the OECD ESD / EU TGD. No RF to waste is provided. RMM assumptions are based on “typical sector practices” for the industrial use. For consumer uses no RMM are included.

The spERCs have a broad scope and the OCs are very generic. The RFs are not sufficiently justified and background information on the industry survey is missing. Both spERCs have potential for improvement and could exemplify several aspects of good practice, including thorough documentation.

5.2.4 CEPE

Two spERCs by CEPE were assessed: formulation of water borne coatings and professional use of coatings by spraying.

The applicability domain is described by naming the main process and the product types. A background note is provided on the internet with further information. The operational conditions are specified as „optimized for highly efficient use of raw materials“ for formulation. The professional use is described by location of use, main emission pathways and the lack of emission control. The release factors are either based on logical argumentation or on the OECD ESD for the coatings industry. No RF to waste is provided. Several RMMs without efficiency values are listed for the industrial use.

The CEPE spERCs are consistent in themselves but, due to the lack of a clear description of OCs and obligatory RMMs it is difficult to judge on consistency and plausibility of RFs. The spERCs have a high relevance as formulation and use of coatings occur in many different sectors.

5.2.5 ECMA

ECMA developed only one spERC on the manufacture of metal-containing catalysts.

The applicability domain is defined listing the metals for which the spERC is applicable. Furthermore, the processing types and processing steps as well as general processing conditions are provided. The release factors are based on industry data. RMMs are provided with reference to specific techniques and efficiencies.

The ECMA factsheet covers a use with a comparatively narrow scope and the release factors are derived based on industry data. Shortcomings regard the presentation of information and the transparency of the justification. It could be an example for the second phase on how industry surveys and the processing of information could be documented.

5.2.6 EFCC

Two spERCs by EFCC were analysed: the industrial use and the wide dispersive use of construction chemicals.

The applicability domains of the EFCC spERCs are very broad and specified by the location of use (application techniques examples for professional use). Differentiation of substance domains are separated into volatile and non-volatile substances and are linked to sub-spERCs. The operational conditions specify the use location and where the substances mainly end up (matrix, no water emissions). The release factors exist for all emission pathways, including waste, and are derived from the OECD ESD on paints and lacquers. No RMMs are described as obligatory.

The factsheets are more or less consistent, as the scopes are broad and operational conditions are described generically. The RF justification is not sufficient and the plausibility can hardly be checked for all potential uses due to the broad scope.

5.2.7 ESIG/ESVOC

Two spERCs by ESIG/ESVOC were assessed: the industrial use of lubricants and the industrial use of functional fluids.

In the factsheet on lubricants the applicability domain is characterized by examples of the product types and in the factsheet on functional fluids by a list of processing steps and information on the degree of containment. Both factsheets further describe the scope by limitations of substance domain, installation size and processing conditions. The operational conditions are specified by use location and the process type being solvent-based. In the FS on functional fluids, the processing efficiency and the need for emission controls to air are also provided.

Release factors are provided to air, water and soil, the former two being differentiated according to substance properties (vapour pressure and water

solubility, respectively). The justification is based on the EU TGD and the OECD ESD on lubricants. No RF to waste is provided.

Obligatory RMM technologies are mentioned for the water pathway, however without efficiencies. Additional measures are described for air and water including type of treatment and assumed efficiency.

It is unclear which processes / use is covered by the spERC on the use of lubricants due to contradictory information in the sections describing the applicability domain. In both spERC factsheets the OCs are only generically described, the information on RMMs is ambiguous and the RFs are insufficiently justified.

5.2.8 ETRMA 3/6d

One spERC by ETRMA on the formulation and industrial use of substances in the rubber industry was analysed.

The applicability domain is specified according to covered processes and substance functions. The installation size and the existence of pre-treatment are mentioned as operational conditions. The release factors to air are derived from the A-tables of the TGD and differentiated according to substance properties. The RFs to water are derived from an industry survey and do not differentiate according to substance properties. RFs to soil and waste are missing. Risk management measures are not specified in the factsheet but reference is made to ETRMA's generic exposure scenarios. Information on the derivation of RFs is provided in a separate background document.

The ETRMA spERC is not fully consistent due to the coverage of two ERCs and the different wording / reference to ERCs in some of the FS sections. Consistency cannot be assessed regarding the description of operational conditions, as these are not specified in terms of parameters qualifying how a process is conducted which is relevant to the environmental release.

The RF derivation for the water pathway can be regarded as best practice and could be subject to further assessment regarding the justification of extrapolating them to all additive types addressed in the factsheet.

5.2.9 Eurometaux

Two spERCs by Eurometaux were assessed: the use of metals in metallic coating and the use of metal compounds in the plastics and rubber industry.

In both factsheets the applicability domains specify the user group, the covered substances and products. In one FS the water partition coefficient for suspended metals is limited in addition. The operational conditions are characterized by the installation size, the processing containment and the existence of water contact. The release factors integrate all processing steps and RMMs and are derived from data compiled in the context of EU risk assessment reports. RMMs are described by type of measure and partly also with operating conditions and the average efficiencies of reported data are provided.

The spERC on metallic coating covers various processes but operational conditions are only generically derived. RFs are based on industry data compiled for EU risk assessment reports. No raw data is presented and the method of RF derivation is not transparently documented.

The spERC on the use of metals in the plastics and rubber industry has a comparatively detailed and clear description of the applicability domain; however no concrete information on the processes is included and it is not clear if formulation and industrial use are covered.

In both spERCs the RFs integrate the entire process (including RMM) and were derived from various site-specific release factors collected in different countries and over a period of 6 years in the scope of EU RARs for different metals. Although the individual information in the RARs is peer reviewed, no documentation of whether or not information collection and assessment methods to derive site-specific release factors were always the same and how that data was processed is included.

5.2.10 FEICA

One spERC by FEICA was assessed: Industrial use of substances in various sectors.

The applicability domain covers several uses with different application techniques carried out indoors. The operational conditions are described as phrases and free text. They specify the location of use and where the substance ends up (matrix, emission pathway). Release factors are provided for air, water, soil and waste and justified with information in the OECD ESD for paints, lacquers and varnishes, with partly modified values. No obligatory RMMs are included for any of the sub-spERCs.

The FEICA spERC is applicable to a wide range of processes. This leads to doubts on whether the RFs actually apply to all adhesive uses in all described sectors and application processes. This cannot be checked by a screening analysis but would require checking the implementation in the different sectors.

5.2.11 IFRA

The IFRA spERC analysed regards the formulation of fragrance compounds.

The applicability domain includes an explanation of which formulation step of fragrances is covered, the specification of a substance domain, a description of installation sizes and a list of covered operations. The OCs include information on the number of batches and dosing, the cleaning processes as well as main points of release from the process with quantified ranges of losses. The RF to air is the same as ERC 2 and the RF to water and the RF to soil are justified with information from an industry survey; no RF waste is provided. No obligatory RMMs are needed according to the factsheet.

The spERC is well developed regarding the description of the applicability domain and the operational conditions are provided in detail and related to RFs. The RF to water is derived from a sum-parameter and based on industry data;

however, as the basic data is not provided and the data collection and assessment method are not transparent the derivation of the values cannot be followed.

6 SUMMARY AND CONCLUSIONS FROM SCREENING

Most of the analysed factsheets are provided in the latest format proposed in the spERCs guidance by CEFIC. Hence, this structure is widely accepted and well understood. It is therefore used as structure for the spERC requisites (c.f. Section 7).

6.1 Assessment of the applicability domain

6.1.1 Summary of findings

The applicability domain of the spERCs is defined in the FS-sections:

- Title;
- „spERC Code“[15];
- Scope;
- Use descriptors and
- Narrative description.

Most spERC titles and spERC codes are more or less in line with the short title rules developed by the European Network on Exposure Scenarios (ENES) and hence specify the user group (via the lifecycle step) and the product type and/or the industry sector.

The information in the section „scope“ differs considerably between the spERCs of the various associations. The information density ranges from a few spERCs which provide information on several aspects whereas others repeat information already provided in the title. Information may be provided on:

- substance domain (substance functions, groups of substances, e.g. metals, petroleum substance or substance properties, e.g. volatile/non-volatile),;
- product types (usually according to PCs);
- process types and/or processing steps (usually examples of covered processes, sometimes including auxiliary and cleaning steps);
- installation size (small / medium / large, if defined based on use or production volumes);
- user groups.

[15] The spERC code contains the titles of spERCs/sub-spERCs if existing. The code consists of the abbreviation of the industry association, the number of the ERC that is specified and a number of the spERC as well as the version number; the latter two are assigned by the association whereas the others are derived from the spERC content.

The section on use descriptors (UDs) is sometimes filled with all UDs, sometimes only with some (e.g. SU and PROC) and sometimes only the PROCs are provided. The UDs are not always consistent with information in the title, scope and operational conditions; frequently PROCs are included, which are likely to have lower emissions than the main process (e.g. PROC 1-4) but do not correspond to user group or the processes listed.

The narrative description is intended to provide a flow-text on the use supporting the overall understanding and providing additional information which is useful for the registrant and his communication in the ES. Many narratives are either inconsistent with the prior sections of the factsheet and hence cause ambiguity on the applicability domain or provide unnecessary information on e.g. the market shares of products. Some narratives are used to include additional information on the justification of release factors and some are left blank.

Information in the various sections defining the applicability domain is partly inconsistent (different types of information in different sections, water emissions but no mentioning of water based processes etc.) or even contradictory and terms are used, which are not clearly defined and / or which can be regarded as surrogate data for operational conditions[16].

Some spERC factsheets cover several sub-spERCs and sometimes these sub-spERCs specify different ERCs (mainly ERC 4 and 5 and ERCs 8a-8f). This usually leads to difficulties in describing the applicability domain because different situations and emission pathways are relevant and need to be covered with the descriptions. However, as spERCs should ensure consistency also at mixture level, the coverage of more than one spERC is possible, if these refer to different substance functionalities (ERC 4 and 5) but the same use with the same operational conditions and RMMs.

6.1.2 Conclusions from the analysis

The analysis showed that in most of the spERC factsheets the applicability domain is described at a very generic level and has a broad scope. As the general descriptions of the applicability domain are in many cases not further narrowed down by the operational conditions it is hardly possible to:

- get a clear picture of which uses are covered from analysing the spERC content and
- check whether the release factors are realistic in relation to the OCs and RMMs; a plausibility check can only be performed at a rough level.

The comparatively broad applicability domains of the spERCs are intended by the spERC developers in order to cover a high number of uses with a low number of spERCs (standardisation, limitation of work load). However, due to

[16] For example the installation size or the efficiency of raw materials use are provided as parameter limiting the scope of a spERC. They integrate information on the degree of containment, the degree of automation of the process as well as the existence of (very efficient) risk management measures. If these conditions were spelled out instead of the surrogate information of installation size or raw material efficiency, it would be clear which uses are covered or not.

this it cannot be ensured that spERCs selected for the CSA are suitable for a use. Furthermore, it is hardly possible to check, whether or not the release factors apply to all covered uses or not.

Consequently, guidance and examples are needed on:

- How narrow / how broad an applicability domain may be defined[17] in relation to OCs/RMMs and the release factors so that evaluators are able to check the plausibility of the spERC and believe that the assessment results and communicated information ensure safe use of a substance;
- The type of information and the level of detail that should be provided in the sections defining the applicability domain;
- How factsheets should be designed to cover the use situation of mixtures; i.e. include sub-spERCs differentiating between substances or functionalities in mixtures.

6.2 Assessment of the operational conditions and release factors

6.2.1 Summary of findings on OCs

The operational conditions are described in the section “operational conditions”. However, also in the sections “scope” and “narrative description” information related to the OCs is provided as well as by the use descriptors and the spERCs’ or sub-spERCs’ titles.

In the majority of spERCs the OCs are generically described specifying the degree of containment, the main emission pathway and if the use is carried out indoor or outdoor. Some spERCs provide statements on the installation size and raw materials efficiency as operational condition (c.f. Footnote 16) which is regarded as surrogate data for more specific information.

The OC information in the various sections is not always consistent with other sections and sometimes even contradictions occur, e.g. to the narrative section or the appendix specifying the determinants for CHESAR import.

The interpretation of which information is an operational condition and which is a risk management measure does not always correspond to that outlined in the ECHA guidance[18]. Therefore, the sorting of information between the sections OCs and RMMs is not always in accordance with that definition.

[17] The appropriateness of the spERCs within a sector could probably be even better be judged, if they are viewed in context with the other spERCs of the same sector. This would allow checking, if the scopes differentiate uses with significantly different use and emission patterns or not. This is actually not possible when only single spERCs are assessed. This will be taken into account in the in depth analysis in Phase 2.

[18] Measures aimed at optimizing the processing which also reduce emissions are operational conditions whereas measures which only aim at reducing emissions and exposures to man and/or the environment are regarded as risk management measures.

Apart from the information on main emission pathways (water, air or inclusion in / on a matrix), the operational conditions are hardly ever directly and explicitly linked to the release factors. This is further discussed in the following sections on RFs and their justification.

6.2.2 Summary of findings on RFs

Three methods justification types of release factors are used in the factsheets:

- Use of RFs from literature, mainly the OECD ESDs and the A-tables of the EU TGD;
- Qualitative argumentation based on the process and/or physical-chemical properties (only if RF = “zero”);
- Derivation of RFs from industry data (survey, use of base data from EU risk assessment reports).

Some factsheets use more than one method (e.g. literature value for RF to air and industry data from survey for RF to water and qualitative information for RF to soil).

Regardless of which RF derivation method is used, assumptions are made which are in many cases neither explicit nor justified. This regards in particular the possibility to extrapolate RFs from one sector, process or mixture to another.

In most spERCs the RFs and their justifications are provided as a table with each information type presented in a separate column. In some cases this results in comparatively long texts in the FS section on release factors.

The understanding of the release factor to waste seems to be different in the sectors. Some associations seem to have included it as amount of the substance input ending up in the waste stream from all internal sources, whereas others only accounted the waste from risk management measures here or stated that no waste occurs at all.

In the following, observations are described for the three justification approaches separately.

Justification of release factors from literature

The main information sources for literature values are the EU TGD (A-tables) and the OECD ESDs.[19] The EU TGD is not a valid information source for release factors according to the ECHA guidance documents as OCs and RMMs are not further specified; hence these RFs are considered as not sufficiently justified. The OECD ESDs are in principle valid background information.

In none of the spERC FSs containing RFs derived from OECD ESDs an analysis is provided discussing if the OCs and RMMs in the OECD ESD are the same or comparable as in the spERC. Therefore, it is not transparent, if the

[19] Actually only for the justification of the regional distribution of product use for wide dispersive uses other literature sources are used.

spERC developers have made a respective assessed and hence ensured that the release factors from the ESD are actually applicable.

Some associations extrapolated RFs from the ESDs of another sector[20] without discussing the applicability domain of the spERC and the ESD or discussing similarity of OCs and RMMs, in the ESD and the spERC. The general statement that "the conditions of use are similar" is not sufficient, in particular if spERCs have a broad scope and cover many different applications and product types.

In some spERCs the quoted RFs could not be found in the original source. This was due to the fact that references do not point out the exact section or table where the values are given.

RFs to waste were not always transferred from a literature source to a spERC.

Justification of release factors based on qualitative argumentation

Qualitative argumentation is only applied if a release factor is either "zero" or "100%"[21]. It is frequently used to justify "zero emission" to soil and waste as well as "no" or "full" emission to air or water.

Usually it is not possible to relate the argumentation of "no release" to the OCs, as these are frequently not specific enough and/or do not refer to those conditions, which would determine the respective RFs[22]. Some examples of insufficient justification are:

- the evaporation of substances is stated to be negligible, but no vapour pressure limits are mentioned in the scope and no maximum operating temperatures are provided;
- substances are stated to be non-volatile if dissolved in water without further specification;
- evaporation is stated to be negligible although spraying (aerosol formation) is explicitly covered in the scope;
- water emissions are stated to be zero without any justification.

Justification of release factors based on data collected from industry

Some associations used already collected data or conducted surveys to generate new data to derive the RFs of their spERCs. This method is only applied for emissions to water.

In all cases where such data was used, background information on how it was collected and processed are not included in the spERC or provide as separate document. Information that would be necessary to check the RFs include:

[20] The OECD ESD on the coatings industry is the source of RFs also for the use of construction chemicals and adhesives.

[21] This means that adding up known release factors to derive the RF for a missing one by subtraction from 100% is not common practice.

[22] For example the operational condition "closed process" could be (part of) a justification of "zero" release to soil; however these direct links frequently do not exist.

- how many and which types of companies provided data (representativeness);
- if a method was prescribed to the companies to compile information, e.g. integration of stored amounts, consideration of the same substance in different mixtures used, measured data, averaging periods (methodological consistency, comparability of collected data);
- types of substances used as indicators for emissions from sites (representativeness of results for "all" substances used, relation to substance domain of the spERC);
- calculation method of the RFs;
- possibility / justification for extrapolating information from on sector / use / application technique to another.

The operational conditions at which information was collected should be listed in the section on OCs in the spERC FS to ensure that RFs are applicable. This is not always the case and frequently no explicit linking is provided. This also concerns the specification of RMMs and their efficiency.

6.2.3 Conclusions from the analysis

All three approaches of justifying release factors are in principle valid.

It is essential that the information on operational conditions and the release factors are sufficiently linked to each other to allow plausibility checking and inform spERC users whether or not the RFs apply to their uses. This explicit link of OCs and RFs is frequently not implemented in the spERC.

Consequently, guidance and examples are needed on:

- How to analyse and discuss the similarity of OCs (and RMMs) in a spERC and a literature source and hence on how to decide on the appropriateness of using RFs from literature for the same use / application technique;
- How to analyse and conclude if it is appropriate to extrapolate RFs from literature on one sector to another; this regards the comparison of applicability domains as well as the types of used substances and products as well as the specific OCs and RMMs (c.f. above);
- The level of detail and explicit linking of qualitative argumentation on the value of RFs with the operational conditions and the substance domain;
- How to transparently document the information basis and calculation methods to derive RFs from industry data;
- How to understand the RF to waste and provide respective information.

6.3 Assessment of the RMMs and their efficiency

6.3.1 Summary of findings

Due to the FS structure, obligatory RMMs are always separately described. In some FS it is specified that RMMs are not necessary / required. Some spERC factsheets only specify a required efficiency, others also provide technology examples. In none of the factsheets the efficiency of RMM is differentiated according to substance properties or substance groups.

In some spERCs it is not fully clear whether the RFs integrate the efficiency of RMMs ($RF_{Overall}$) or if they only relate to the OCs and hence apply prior to the RMMs ($RF_{Release}$). Misunderstandings could occur from wording of information in the section on obligatory RMMs, such as “RMM may be required” or “may be used” although the section is called obligatory RMMs.

If release factors are derived from literature, no discussion on the existence of RMMs in the original source is included (this is analogous to the operational conditions, c.f. Section 6.2). The existence of RMMs is usually not included in any qualitative argumentation. If RFs are derived from industry data, the possible RMMs technologies are often described but no separate efficiency values are provided.

Some factsheets include more detailed information on the additional RMMs which could be used for iteration purposes than in the section on obligatory RMMs.

6.3.2 Conclusions from the analysis

Information on RMMs is comparatively general in many factsheets and the expectation that both efficiency values and technology examples are provided is hardly ever fulfilled to a sufficient degree. The information appears most complete in those factsheets, where the RFs are derived from industry surveys.

Consequently, guidance and examples are needed on

- Which information should be provided in the section “obligatory RMMs” as a minimum;
- If and how RMM efficiencies can be described more specifically and related to substance properties;
- Which information could be provided in addition to allow downstream users to check, if the intended efficiency is reached.

6.4 Release to soil

At the kick-off meeting no final decision was taken on how the release factor to soil should be documented in the spERCs.

The most obvious releases to soil can occur during outdoor applications of mixtures for instance paints, hydraulic fluids, lubricants, cleaning products (detergents) etc. Substances may also be release from plastic, rubber or metallic articles through leaching, evaporation and abrasion; however, spERCs

for articles have not yet been developed. Soil emissions might occur from industrial installations through leakage (storage tanks) or drag out of dust (bulk storage areas). Another source of releases to soil are spillages which might happen at certain operations like loading and unloading at storage sites and from transport.

Emissions to soil from accidents or equipment failure are not considered as "regular" emissions.

Releases to soil at industrial sites can be prevented by RMMs like liquid tight floors, concrete curbing, and good maintenance and functioning of equipment, the sewer and drainage systems. For releases to soil from (wide dispersive) outdoor uses no risk management measures can be assumed.

In environmental risk assessments industrial soil is not considered as a protection goal and there is no risk characterization for industrial soil[23]. However, releases to industrial soil from industrial and professional point sources are taken into account as they contribute to the total substance load of other compartments via the environmental distribution. They are hence relevant for the environmental risk assessment at regional (country) and continental (European Union) scale.

In general, the relative contribution of emissions to industrial soil to the total environmental burden is expected to be of minor importance especially compared to direct release to soil from wide dispersive outdoor uses.

From this perspective, the importance of quantifying releases to industrial soil is questionable. Nevertheless, qualitative argumentation and the definition of respective RMMs should be provided to justify negligible releases, if relevant. Release factors to soil for any use taking place outdoor should be quantified.

6.5 Observations on additional aspects

Many factsheets use standard phrases from the EUPHRAC. This is intended in order to facilitate standardisation and limit workloads. However, these phrases are not of sufficient quality and are in particular ambiguous due to the use of undefined terms. Therefore the phrases should be checked respectively and unclear terms be eliminated or information be provided how they could/should be specified in the spERC / downstream user communication

Checking plausibility and understanding the factsheet, in particular regarding the OCs, RMMs and the RF values would be facilitated by a clear description and explicit linking of the emission determinants and the release factors. A

[23] EC (2003). Technical Guidance Document on Risk Assessment in support of Commission Directive 93/67/EEC on Risk Assessment for new notified substances Commission Regulation (EC) No 1488/94 on Risk Assessment for existing substances Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market.
EC (2004) European Union System for the Evaluation of Substances 2.0 (EUSES 2.0). Prepared for the European Chemicals Bureau by the National Institute of Public Health and the Environment (RIVM), Bilthoven, The Netherlands (RIVM Report no. 601900005). Available via the European Chemicals Bureau, http://ecb.jrc.it

separate document with background information would be useful for spERC users and evaluators to understand and work with a spERC.

The relationship between the CHESAR determinants and the information provided in the factsheet appendix is not fully clear and partly confusing. The CHESAR determinants partly differ from the information in the factsheet. A comparison of the determinants in the appendices of the factsheets with the CHESAR output for the respective spERCs showed that much more of the factsheet information is imported into CHESAR.

7 SELECTION OF SPERCS FOR IN DEPTH ASSESSMENT

7.1 Introduction

Based on the above assessment results, the selection of spERCs and the characterization of work for the second phase is defined. Three aspects are identified from the screening which could be subject to in-depth work:

1. Development of a better justification / documentation of release factors by the developers of the spERC. This should be performed for RFs based on
    a. Industry data;
    b. Logical argumentation;
    c. Literature values.
2. Improving the understandability and level of detail of the applicability domain; i.e. the sections Title, Scope, UDs, narrative description as well as ensuring consistency with (an improved description of) OCs and RMMs. This work could be performed by the spERC developers in cooperation with their downstream users and would entail viewing the assessed spERC in context of the whole sector[24].
3. Derivation of RMM efficiency in relation to substance properties, this could be performed for any spERC.

The following table lists the possible areas for improvement for the screened spERCs.

[24] In order to get a feeling of whether or not the applicability domain is sufficiently broad or narrow to differentiate uses which have significantly different emission patterns and amounts, all spERCs of a sector should be compared to the uses of the sector. This is best performed in cooperation with the downstream users of a sector. It can only be evaluated during the first meetings with the spERC developers.

Table 3: List of improvement possibilities of the analysed spERCs

spERC	Applicability domain	OCs/RMMs	RFs	RF justification type	Pros for assessment in Phase 2	Cons for assessment in Phase 2
ACEA (sanding)	Sorting of information on scope	Sorting of information, more specific OCs	Documentation of database underlying RF derivation; how to overcome CBI in background data	Industry data / survey, logical arguments	Process is relevant to different sectors Obligatory RMMs included Association signalled interest in cooperating Difference OC / RMM can be demonstrated with existing FS	Process is comparably specific Potential difficulties due to confidentiality,
ACEA (spraying)	Sorting of information on scope; discussion if spERCs should be separated for ERC 4 and ERC 5	Sorting of information, more specific OCs	Documentation of database underlying RF derivation; how to overcome CBI in background data	Industry data / survey, logical arguments	Process is relevant to many different sectors Obligatory RMMs included Association signalled interest in cooperating Comparison to CEPE spERC possible	Potential difficulties due to confidentiality
AISE IU water borne processing aids	Clarification of scope (consistency, more elaborated), testing with DUs if different processes are covered and if RA is possible without iterating by adding RMMs	Inclusion of RMM	Development of RF waste, improvement of justification for RF soil and RF air	Logical arguments	Process is relevant to many different sectors Assessment of how broad scopes can be handled	No obligatory RMMs included Only logical arguments supporting RF; RFs = 0 or 1
AISE metals salts in conversion coating	Testing with downstream users if different processes are covered and if RA is possible without iterating by adding RMMs	Improvement of level of detail on OCs	Testing if RFs apply to all covered processes / process types	Logical arguments (also for RF other than "0")	Process is relevant to many different sectors Obligatory RMMs included Logical arguments supporting RFs other than "0" or "1"	Unclear if different DUs would participate, testing of scope difficult if only one spERC is assessed
AISE wdu of cleaning agents	Clarification of scope, theoretical testing with different product types	Check and potential improvement of level of detail on OCs		Logical arguments	Example of wdu	No obligatory RMMs included Only logical arguments supporting RF; RFs = 0 or 1 Low potential risk
ATIEL lubricants in high energy open processes	Clarification of scope, adding of narrative	Specification of OCs, check of air RMMs, inclusion of efficiencies of obligatory RMMs	Development of RF waste, development of documentation of RF derivation	Industry data / survey, OECD ESD (lubricants)	Comparatively narrow scope Obligatory RMMs included RFs depend on PC properties and pre-treatment	Process quite specific SpERCs mainly developed to support formulators
ATIEL consumer use of lubricants	Clarification of substance domain, adding of narrative	Details on OCs	Qualitative justification for all RFs instead of TGD values; development of RF waste	Industry data / survey, OECD ESD (lubricants)	Example of consumer use Qualitative argumentation for all RFs with values other than 0	No obligatory RMMs included SpERCs mainly developed to support formulators
CEPE formulation		Sorting of OC and RMM information; specification of efficient raw material use,	Discussion of OCs/RMMs assumed in spERC and underlying ESD from which RFs are derived; inclusion of expert judgment for RF air, development of RF soil and RF waste	OECD ESD(paints), expert knowledge	Represents formulation processes for different products Obligatory RMMs included; however to be sorted into respective FS sections	Well known process with low release potential
CEPE spraying	Check of use descriptors	Specification of OCs, check of RMM air	Discussion of OCs/RMMs assumed in spERC and underlying ESD from which RFs are derived; development of RF waste	OECD ESD (paints), expert knowledge	Professional use, relevant for many sectors	No obligatory RMMs included and relevant Only ESDs as justification for RFs
ECMA		Specification of	Documentation of industry survey and	Industry data	Obligatory RMMs included	Very specific use; not representative and

spERC	Applicability domain	OCs/RMMs	RFs	RF justification type	Pros for assessment in Phase 2	Cons for assessment in Phase 2
manufacture of Me-containing catalysts		obligatory RMMs	database underlying RF derivation		Good starting point for best practice example	cannot be extrapolated
EFCC industrial use of CC – non-volatile	Testing with downstream users if all different processes are covered and if RA is possible without iterating by adding RMMs; potential narrowing of scope and development of more than 1 FS	More concrete OCs, check if RMMs should be added	Qualitative justification of RFs, discussion of extrapolation of ESD for paints and coatings to construction chemicals	OECD ESD (paints)	Use is relevant due to comparatively large use amounts Possibility to work on use with broad scope Possibility to work on how to extrapolate ESD to other sectors	No obligatory RMMs included Unclear if different DUs would participate, testing of scope difficult if only one spERC is assessed
EFCC wdu of CC non-volatile outdoor	Check of necessity to narrow scope, consistency in PROCs	Modification of OCs to fit "zero emission"	Qualitative justification of RFs, discussion of extrapolation of ESD for paints and coatings to construction chemicals	OECD ESD (paints)	Example of wdu Possibility to work on how to extrapolate ESD to other sectors Different information sources mixed	No obligatory RMMs included Only qualitative arguments for RFs of "0" or "1"
ESIG industrial use of lubricants	Specification of scope, testing if all covered uses actually achieve the provided RFs	Specification of OCs, clarification of obligatory RMMs	Revision of RF justification	EU TGD, OECD ESD (lubricants)	Use is relevant to many different sectors Obligatory RMMs included RFs differentiated according to substance properties	
ESIG industrial use of functional fluids	Clarification of scope	Adaptation of section on OCs and RMM according to clarified scope	Revision of RFs and reworking of justification	EU TGD, OECD ESD (lubricants)	Obligatory RMMs included RFs differentiated according to substance properties Different information sources mixed	Unclear which use is actually covered
ETRMA rubber processing	Discussion of separate FS could be developed for formulation and processing, improving consistency in title, scope and narrative	Specification of OCs, clarification of obligatory RMM	Revision of justification on RF air, development of RF soil and waste with justification	Industry data / survey, EU TGD	Use covers entire sector Obligatory RMMs included	Very specific sector with specific data situation SpERC covers two uses (formulation + processing)
Eurometaux metals in metallic coating		Specification of OCs, clarification which RMM efficiency is required	Description of database and method for RF derivation	Industry data / survey	Use is relevant to many different sectors Obligatory RMMs included	Complex base data Low representativeness of substance domain
Eurometaux industrial use of metal compounds	Clarification of scope (Title, sub-spERC codes, PROCs)	Specification of OCs, clarification which RMM efficiency is required	Description of database and method for RF derivation	Industry data / survey	Use is relevant to many different sectors Obligatory RMMs included	Complex base data Low representativeness of substance domain
FEICA adhesives in various applications	Clarification of coverage, check if all listed sectors are actually covered or if spERCs should be differentiated	Specification of OCs, check, if state-of-the-art RMMs should be included	Discussion of OCs/RMMs assumed in spERC and underlying ESD from which RFs are derived; discussion of extrapolation from paint to adhesive use	OECD ESD (paints), logical argumentation	Use is relevant to many different sectors Possibility to work on how to extrapolate ESD to other sectors Association signalled interest in cooperating	No obligatory RMMs included
IFRA fragrance formulation	Improvement of narrative	Revision of OCs	Development of background information on industry survey and justification of assumption on COD relation to fragrance compounds, development of RF waste	Industry data / survey	Use represents different formulation processes	No obligatory RMMs included Well known process with low release potential

7.2 Proposal of spERCs for phase 2

In the work plan criteria were proposed to select spERCs for Phase 2. These criteria are:

- The selected spERCs should cover all types of assumptions and justifications of OCs, RMMs and release factors identified and regarded as valid in factsheets; therefore, three spERCs should be selected, one mainly based on literature values, one on measured data and one on qualitative information, e.g. from sector experts.
- SpERC developers should be motivated to enter into a common work process with the project team to improve their spERC, publish it as best practice and derive overall spERC requisites from that work[25]
- SpERCs should cover all relevant challenges (e.g. sufficient level of detail in the documentation, description of how information was collected if measured data was used, undefined terms are defined in the spERC documentation etc.) to cover in the spERC development in order to identify means and methods to overcome the problems.

The pros and cons collected in Table 3 do not directly allow preferring one spERC over another. Therefore the following considerations are made:

7.2.1 SpERCs which should not be selected

Wide dispersive uses (consumers and professional use) are not very interesting to work on as total release is assumed and only the distribution to the emission pathways could be worked on. Logical argumentations are usually comparatively simple and sufficient. Therefore, the spERCs AISE wdu of cleaning agents, ATIEL consumer use of lubricants, EFCC wdu of CC non-volatile outdoor and CEPE spraying are not recommended for in depth work in Phase 2.

The formulation process is comparatively simple, well known and has low risk potential. Therefore the spERCs on the formulation process by CEPE and IFRA should not be selected.

No spERCs should be selected, where obligatory RMMs are not included in order to ensure that this aspect is worked on in the exemplification. Therefore the spERCs AISE IU water borne processing aids, EFCC industrial use of CC – non-volatile should not be selected.[26]

Logical argumentation can be exemplified in various spERCs, hence no spERC should be selected, where this is the only type of justification for all release

[25] Based on our experience in prior projects and due to existing communication with the spERC developers, we expect to be able to operationalize this criterion for any spERC.

[26] An exception is made for the FEICA spERC on industrial use of adhesives, where at the time of spERC selection no RMMs are included. Among other reasons, this is justified by the fact that the other two selected spERCs include RMMs and that it is expected that RMMs are present in the uses covered by the spERC but have not been considered, yet.

factors. Therefore, the AISE spERC on the use of Me-salts in conversion coating should not be selected.

The spERCs should not be too specific, so that exemplification is useful to many other sectors. Therefore, the ECMA spERC (manufacture of Me-containing catalysts) should not be selected.

7.2.2 SpERCs which are good candidates for phase 2

Of the remaining spERCs at least one should be selected, with RFs based on industry survey data and one based on the OECD ESD in order to provide examples for each type of justification. Furthermore, the spERCs should be relevant to different sectors (i.e. uses could be “horizontal”). Only one spERC per association should be selected. Finally, the willingness of associations to participate is crucial for the selection of spERCs for phase 2.

The associations ACEA and FEICA were already asked and signalled their readiness to participate in the project. Therefore, it is proposed to select the spERCs

- ACEA spraying (includes 5 sub-spERCs for different substance properties) and
- FEICA use of adhesives in several sectors
- The third spERC will be selected according to the willingness of associations to participate. The project team’s preferences of the remaining would be: ATIEL, ETRMA, EUROMETAUX, ESIG/ESVOC.

8 DRAFT SPERC REQUISITES

The assessment criteria of the screening analysis were revised according to the screening experience.

For all sections the expected FS content is defined, the expected information types (level of detail) are described and a comment is added providing guidance based on the main shortcomings observed in the screening assessment. In addition, best practice examples of the respective sections identified in the spERC screening are included in a separate column.

These spERC requisites will be the basis of the in depth work in the second phase. They should be developed to describing good and best practice in spERC factsheets. It is therefore essential that they are discussed and agreed by ECHA and industry and potentially other interested stakeholders, such as the Member States.

The first step to formulate the minimum expectations by ECHA should be performed in the scope of the meeting on Phase 1 and the written commenting of this report.

The spERC requisites are provided as separate Annex II to this report to facilitate the distribution to other stakeholders after agreement with ECHA.

9 RELEASE FACTOR TO WASTE

9.1 Introduction

The release factor to waste is not implemented in several spERCs. The understanding of the RF to waste of those sector associations' which do provide one in their factsheets seems to be differing. Therefore, the following short explanation should be discussed as potential future guidance on deriving this RF.

9.2 Background information

The ECHA guidance document on the exposure assessment of the waste phase is apparently difficult to implement and seems not to be followed in the submitted registration dossiers. The respective assessment steps are complex and required knowledge on the uses and potential waste disposal pathways of a substance. At present, the assessment of the waste stage is not a high priority for ECHA, among others because separate legislation is in place that should ensure adequate control of risk. However, as a minimum the information on the substance flows to the waste streams should be collected under REACH.

9.3 Understanding of the RF to waste

The release factor to waste should describe the fraction of the substance input to a use which finally ends up as waste. Waste is understood as material flow that falls under the waste legislation. This excludes waste which is collected on-site for on-site recycling / recovery, as the substances, although shortly being waste, are re-introduced into the use as input material at the same site.

For use in CHESAR the RF to waste is split into an RF to waste from risk management measure and an RF to waste from "other sources", which may include:

- Remains in empty packaging
- Production wastes containing the substance which are not reused / recycled or from which substances are not recovered
- Spills of the substance, cleaning agents containing the substance and or remains of the substance from equipment extracted during maintenance operations etc. all of which only if they are not disposed of via the wastewater

The RFs to waste integrate all types of wastes, regardless of how they are disposed of. Hence, the amounts from all sources are added up.

10 ABBREVIATIONS

BREF	Best Available Techniques Reference Document
CBI	Confidential Business Information
CC	Construction Chemicals
CoU	Conditions of Use (OCs + RMMs)
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
DU	Downstream user
ECHA	European Chemicals Agency
ENES	European Network on Exposure Scenarios
EUPHRAC	EU Phrase Catalogue
ERC	Environmental Release Category (use descriptor)
ES	Exposure Scenario
EU TGD	Technical Guidance Document on Risk Assessment of the European Union
FS	Factsheet
GES	Generic Exposure Scenario
IPPC	Integrated Pollution Prevention and Control
OC	Operational Condition
OECD ESD	Emission Scenario Document of the OECD
PC	Product Category (use descriptor)
PROC	Process Category (use descriptor)
RF	Release Factor
RMM	Risk Management Measure
SDS	Safety Data Sheet
spERC	specific Environmental Release Category
STP	Sewage Treatment Plant
SU	Sector of Use (use descriptor)
UBA	German Environment Agency
VOC	Volatile Organic Compound
Wdu	Wide Dispersive Use
WW	Wastewater

WWTP	Wastewater treatment plant

Annex I

ECHA SERVICE CONTRACT "ASSESSMENT OF RELIABILITY OF SPERCS"

DETAILED RESULTS OF SCREENING ASSESSMENT OF SPERCS

1 SPERC ACEA 4.1 - SPRAYING

1.1 General characterization of spERC

The FS of the ACEA SPERC 4.1 „Industrial use of liquid spray coatings in installations with wet scrubber for collection of overspray“ covers 5 sub-spERCs and specifies 2 ERCs (ERC 4 and ERC 5) which differ by the product type (water-borne, solvent borne or spray liquid coatings), the substance types (volatiles and non-volatiles) as well as their water solubility.

The applicability domain is specified by product type (spray coating) in conjunction with wet scrubbers and paint sludge-water separator.

Two sets of OCs are described with elaborative background texts. These texts mainly explain how the overspray is generated and treated but information on the conditions of the processes are not provided[27].

The RFs are derived based on industry data using typical transfer rates of substances from overspray to water in wet scrubbers. The calculation is documented in a separate excel spreadsheet.

RMMs are not explicitly listed by technique in the respective RMM section and no efficiencies are provided. However, information is provided in other sections (wet scrubber in spray booth with water-sludge separation).

1.2 Candidates for best practice identified in the spERC

The description of the spERC's coverage is, apart from the listing of a PROC relating to professional use, consistent and no undefined terms are used. They further specify the title and add useful information to determine the relevance of the spERC for the user.

If the various descriptions of OCs and RMMs in the FS are viewed together, they allow a good view of the overspray collection and treatment process. This includes understanding the relationship between the operation of the process, the RMMs and the release factors[28].

The justification of the RF to water is based on a calculation model for transfer rates of organic solvents (also other coating compounds for the other sub-spERCs) from overspray to water. It is provided as excel sheet with each calculation step explained in detail. This is a transparent documentation of how the RF is calculated.

The spERC is a good example of how information on different types of substances (process auxiliaries and substances to be included in the matrix) can be covered in sub-spERCs of one spERC factsheet.

[27] Some information on OCs is included in other sections of the factsheet however, such as the justification of RFs.

[28] However, the information is not structured and described concisely and understandably, including the quantitative justification of RFs; c.f. shortcomings.

1.3 Shortcomings identified in the spERC

- The clarity of descriptions in the FS could be increased if information was better sorted and all operational conditions and RMM information would be described together for all sub-spERC while specifying RFs and RMM efficiencies separately. The descriptions of OCs and RMMs are inconsistent, not concise, complex and difficult to understand. It is not clear how the process is actually carried out.
- Within the factsheet sections information pertaining to the specification of the spERC's scope and information that characterizes how the spERC values were derived (justification) is not clearly separated. This leads to comparatively long explanations which are complex and difficult to understand[29]. In addition, the justification contains additional information on the process (e.g. use of spray booths), which should be provided to define the scope and OCs.
- The terms volatile/non-volatile should be defined and the term lead substance should be avoided
- Whereas the calculation of RF water itself is plausible, the sources of the used values and assumptions are not provided. Furthermore, it is not discussed why the transfer rates derived from data of the car coating sector can be extrapolated to all other use sectors listed in the use descriptors.
- A clear justification for the RFs to air, soil and waste is not included in the FS.
- It is not fully clear if the RFs are initial RFs (prior to RMMs) or overall RFs integrating the efficiency of the RMMs.

1.4 Conclusions from screening

The description of the spERC shows that a different understanding of operational conditions and risk management measures is applied than suggested in ECHA's guidance[30]. The overall understanding of the process is partly difficult due to these differences in understanding.

The spERC „ACEA spray coating" includes a transparent documentation of the calculation of RFs to water and several detailed descriptions of the process and applied RMMs. However, the information is not sufficiently well organised in the different sections and texts are partly long and difficult to understand. The base data for the RF derivation is missing and justification of some RFs is not fully comprehensible.

[29] They are helpful for evaluators and spERC users to understand how the RFs were derived but are rather confusing for all registrants who, relying on the correctness of the spERC would prefer getting the core information in a concise way and having background information as reference available in separate sections or even a separate document.

[30] ECHA: Measures primarily aimed at reducing exposure are RMMs; measures which optimize processing and raw materials use and – as a „side-effect" also reduce emissions and/or exposures are OCs.

1.5 Detailed assessment results

1.5.1 Applicability domain

Table 4: SpERC ACEA spray coating - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of liquid spray coatings in installations with wet scrubber for collection of overspray	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes Different ERCs for volatiles and non-volatiles
		Title in line with ENES short titles?	Yes RMM information would be additional (3rd) identifier
Scope	Processing and RMMs details, installation size and substance domain	Description concise and simple?	No Long text, last paragraph contains background information on the data basis (derivation of transfer rates and possibility to extrapolate) which does not belong to the scope. The term "close-to-industry settings" regarding the use of coatings by professional users is undefined.
		Users, substances, products, processes specified or excluded?	Yes
		Cleaning and maintenance explicitly mentioned?	Partly Cleaning yes, maintenance no (however, covered under OCs)
		Other observations	The use of the term "lead substance" may be confusing for registrants, as they do not know whether or not their substance is the lead substance in the coating.
UDs	SU, ERC, PROC, PC	UDs reflect "Title" and "Scope"?	Mostly PROC 11 is inconsistent with the scope as it relates to non-industrial spraying (professional use only included, if "close-to-industrial setting".
OCs	Installation size, containment, water contact	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Typical substances and need for Tier 1 assessment, method of RF justification	Domain narrated understandably?	No No further information on applicability domain
		Domain consistent with "Title" and "Scope"?	

1.5.2 Operational conditions and release factors

Table 5: SpERC ACEA spray coating - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of liquid spray coatings in installations	Title consistent with OCs?	Yes
Scope	Processing details, installation size	OCs worded as in OC section?	Partly Some information is included in the background information of the OCs; installation size surrogate information for nature of OCs and RMMs
UDs	PROC	PROCs reflect "OCs"?	Partly PROC 11 is inconsistent with the scope as it relates to non-industrial spraying (professional use only included, if "close-to-industrial setting".
OCs	Main section:	OCs concise and	Partly

Section	Relevant FS content	Assessment criteria	Assessment result
	substance domain and IED regulating installations Background section: justification of RFs and information on RMM	understandable?	Main section yes, background section no
		OCs consistent with other sections?	Partly The operational conditions repeat the content of the sections "scope" and "use descriptors". The Industrial Emissions Directive (IED) is quoted to specify the conditions of release to air. No information on the actual operational conditions of the spraying process are provided, which could be as a minimum indoor/outdoor use; open/close processing
		Influence of OCs on release made explicit?	No Influence of RMMs described in detail
		OCs State-of-the-Art?	Unclear No processing details provided
		Other observations	Background information on OCs refer mainly to RMMs
Obligatory RMMs	No RMM for volatiles, physic-chemical treatment for non-volatiles	RMMs fit to main emission pathway(s)?	Unclear No RMM for waste gas treatment is specified for volatiles
Release factors	Air, water, soil, waste	Value plausible in relation to OCs?	**RF Air:** The justification explains where emissions occur but does not provide information on the size of the default value of 0.9. **RF Water:** No reference is included to the excel spreadsheet. It is assumed that releases from peak times can be averaged to the working days; this is explicitly not possible and any misunderstandings should be avoided. It is furthermore difficult to understand of what emission size the peak emission is ten-fold. The calculation of RF in the excel sheet is valid and correct for the coating of cars. No arguments are provided on why the information can be extrapolated to other sectors (use descriptors include practically all manufacturing sectors). The assumptions made in the calculation are not justified and no sources are provided (e.g. no source for minimum amount of solvent in water-borne coatings, unclear who gave feedback on the assumptions (column feedback)). The "further justification" is not understandable and need more explanation; among other, the following questions are raised: did companies measure COD content and was 0.1% the result? Why do measurements below 0.1% justify the release rate of 0.5? What consequences does the fact have that the substances are part of azeotropic mixtures in relation to the release rate? Do hazardous substances really always have a low solubility? In how far does that relate to the release rate? Only the answers to these questions could be regarded as potential justifications for the release rate. The **RF soil and RF waste** are not explained.
		Justification of RFs sufficient and can be followed?	
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable
Narrative	Typical substances and need for Tier 1 assessment, method of RF justification	OCs understandable and consistent?	No information on OCs provided
		OC descriptions support understanding?	
		Additional useful info on OCs?	

1.5.3 Risk management measures and their efficiencies

Table 6: SpERC ACEA spray coating - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	RMMs details	RMM info consistent with "Obligatory onsite RMMs"?	No Several (details of) measures described in the section are not part of the RMM section
Obligatory RMMs	No RMM for volatiles, physical-chemical treatment for non-volatiles; efficiencies provided	RMM info concise and understandable?	Yes However, inconsistent with other sections (OCs)
		Clear if RFs apply with or without RMMs?	No Unclear for air emissions; inconsistent with existence of wet scrubber specified in the title. Furthermore it is likely that compliance with the IED requires the presence of off-gas treatment devices which should be mentioned here (this is also indicated in footnote 2). The description of water RMMs (in the background section to the OCs) is confusing as it states that overspray may be collected by a wet scrubber (pre-condition for applicability of spERC according to title and scope) and further explains that this RMM is being replaced by dry processes (unclear if these are still covered by the spERC).
		Explicit if RMMs are not needed?	Yes However inconsistent with other sections
		RMM efficiency provided?	Partly For water RMM; for air RMM no information, as they are not listed under the respective section.
		RMMs fit to OCs, PCs and substances?	Partly As wet scrubber is not mentioned in the section (due to understanding as OC), this is missing for the air pathway
		RMMs State-of-the-Art?	Unclear As spERC applied to various sectors, use of wet scrubber cannot be checked in screening
		Information source on RMM provided?	Yes Condition for use of spERC, industry data
Narrative	Typical substances and need for Tier 1 assessment, method of RF justification	RMM info concise and understandable?	No information on RMMs provided, except that spERC is only applicable for installations with wet scrubber
		RMM info supports understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	No

1.5.4 Days emitting

Table 7: SpERC ACEA spray coating - emission days

Section	Relevant FS content	Assessment criteria	Assessment result
Days emitting	300 for continuous withdrawal 30 (withdrawal from buffer, rate 10 m^3/d), (may also be 90 days every three years)	No confusion with working days of workers (e.g. 220); correspondence to average production days	Plausible

1.5.5 Appendix

Table 8: SpERC ACEA spray coating - appendix (CHESAR import)

Section	Relevant FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

2 SPERC ACEA 12A.1 - SANDING

2.1 General characterization of spERC

The FS ACEA 12a.1b: Sanding of applied coatings, solid lead substance with water solubility ≤ 10 mg/l does not have any sub-spERCs.

The applicability domain is defined by the product type (coating) and the existence of a RMM (wet sanding dust collection). It is limited to installations where the operations are connected to physical-chemical wastewater treatment before discharge to the municipal STP. Some substances and substance functions are excluded from the scope.

The OCs further specify the applicability domain stating that substances in dried / cured coatings are covered and that RMMs should be in place. Also quantitative information on removal rates of coatings and the efficiency of RMMs is provided.

The RFs to water are derived from industry data. The calculation is documented in a separate excel spreadsheet.

The type of RMMs is defined and an efficiency value is provided.

2.2 Candidates for best practice identified in the spERC

The relationship between the use conditions and the releases of substances are explained quantitatively in the background information[31] by following substance contents at different processing stages. This is further supported by a separate excel-sheet with information on how the RFs are derived.

The method for derivation of the release factor to water is transparently documented and the calculation can be followed. However, the underlying base data on substance contents, release percentages and transfer rates are not documented and cannot be followed.

[31] The information is not appropriately placed in the section „Operational conditions“ but very useful in general.

2.3 Shortcomings identified in the spERC

- The spERC is ambiguous in some regards, e.g. the term “lead substance” is used, which may be confusing for registrants. Another example in the scope section is the statement that all substance are covered but some are explicitly excluded.
- The limitation to a use rate of 100 kg substance per day is not necessary, as the registrants could scale the use rate. It is furthermore confusing as the spERC applies to cured coatings and it is not fully clear to what the use rate refers.
- Some sections could be phrased more understandably and with fewer words.
- The description of OCs (including background information) is confusing as it contains details on RMMs, information on the use of coatings (step before sanding) as well as reasoning for compound concentrations at different stages in the RMM. This information is useful but not appropriately placed in the FS.
- The narrative section does not include further information on the process but on the RF justification, scaling and the need to register hazardous substances.
- The RFs to air and soil cannot be followed. The release factor to waste is not justified or explained at all.
- It is not fully clear if the RFs relate to the substance input into the coating process or to the sanding process.
- The RMM description is incomplete in the section “Obligatory RMMs”, this may lead to confusion on the applicability of RFs and the spERC as such.

2.4 Conclusions from screening

The spERC „ACEA sanding“ includes a transparent documentation of the calculation of RFs to water and several detailed descriptions of the process and applied RMMs. However, the information is not sufficiently well organised in the different sections and, similar as in the factsheet for spray coating, the texts are partly long and difficult to understand. The base data for the RF derivation is missing and justification of some RFs is not fully comprehensible.

2.5 Detailed assessment results

2.5.1 Applicability domain

Table 9: SpERC ACEA sanding - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial sanding operations for applied coatings with wet sanding and dust collection	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		spERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes 3rd identifier (process and RMM type) may be too detailed
		Additional observations	The term lead substance in the spERC code may be confusing, as registrants register their substance and do not know if it is the lead substance in a coating.
Scope	Process, RMM, installation size, examples of substance functions, exclusion of substances	Description concise and simple?	Party Information on transfer rates belongs to RF justification, wording could be shortened
		Users, substances, products, processes specified or excluded?	Yes Applicability domain ambiguous, as stated to cover "all" substances but some are excluded (specific substances and substance functions)
		Cleaning and maintenance mentioned?	No
		Other observations	The applicability is limited to a use of 100 kg substance /d,; substances which are hazardous to the environment but not classified (e.g. EDC) are not in the scope.
UDs	SU, ERC, PROC, PC	Do UDs reflect "Title" and "Scope"?	Yes SUs of various sectors
OCs	Compounds in coatings, use of machines, RMMs, back-ground info	Are OCs consistent with "Title" and "Scope"?	Yes
Narrative	Hazardous substances to be assessed, justification	Domain narrated understandably?	No No further explanation of the process
		Domain consistent with "Title" and "Scope"?	Yes No overlap, however

2.5.2 Operational conditions and release factors

Table 10: SpERC ACEA sanding - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial sanding	Title consistent with the OCs?	Yes
Scope	Process, installation size	OCs worded as in "Operational conditions?	Yes OCs include additional information on RMMs
UDs	PROC	PROCs reflect "OCs"?	Yes
OCs	Use of machines, background information	OCs concise and understandable?	Partly OCs include RMM information, crucial processing conditions are not mentioned (e.g. degree of containment) Background text is long and complicated
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	Yes Note that only the RMMs seem to determine the release
		OCs State-of-the-Art?	Unclear

Section	Relevant FS content	Assessment criteria	Assessment result
			OCs not explicit
		Other observations	Long text with information that should rather be included in the sections on obligatory RMMs and/or the narrative
Obligatory RMMs	Physical-chemical treatment with 90% efficiency	RMMs fit to main emission pathway(s)?	Partly Measure for water pathway only names final treatment (no removal of dust and transfer to water) No measures for the air pathway are mentioned, although named in the OC section; unclear if necessary or not
Release factors	Air, water, soil and waste.	Value plausible in relation to the OCs?	Partly **RF air:** unclear (if 99% retained, RF should be 1%; RF is 0.0001) **RF water:** plausible with excel-sheet **RF soil:** justification only relates to waste treatment, not to the process as such (e.g. no outdoor use) **RF waste:** no clear justification, value cannot be followed from excel-sheet.
		Justification of RFs sufficient and can be followed?	
		Method of RF derivation described and understandable?	Partly Calculation of RF to waste documented in excel, other factors unclear
		Differentiation by properties plausible?	Not applicable
		Other observations	The calculation of the RF to water is based on information from the car coating industry; it is not discussed if and why the values can be extrapolated to other sectors. It is not fully clear to which input the RFs relate; missing explanation of reference to input into coating process.
Narrative	Hazardous substances to be assessed, justification	OCs simple & consistent with other sections?	No information on OCs contained in the narrative.
		OC descriptions support the understanding?	
		Additional useful info on OCs provided?	

2.5.3 Risk management measures and their efficiencies

Table 11: SpERC ACEA sanding - risk management measures

Section	FS content	Assessment criteria	Assessment result
Scope	RMM	RMM info consistent with "Obligatory RMMs"?	Yes
Obligatory RMMs	Physical-chemical treatment with 90% efficiency	RMM info concise and understandable?	Partly Information on RMM for air pathway is missing; information that emissions to water occur due to dust collection in scrubber / water tanks / cleaning is not included
		Clear if RFs apply with or without RMMs?	Partly Clear for water pathway, not clear for air, as information is inconsistent
		Explicit if RMMs are not needed?	Unclear if applicable
		RMM efficiency provided?	Partly Provided for water; for air partly "hidden" in OC Section and excel-sheet
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes
		Information source on RMM provided?	No Information is indirectly given in narrative explaining the origin of the RFs.
Narrative	Hazardous substances to be assessed, justification	RMM info concise and understandable?	No additional information on RMMs
		RMM info supports the understanding?	

Section	FS content	Assessment criteria	Assessment result
		Additional useful RMM info given?	
		Additional info on waste management?	

2.5.4 Days emitting

Table 12: SpERC ACEA sanding - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	300 50 in case of regular cleaning once / week	No confusion with working days of workers (e.g. 220); correspondence to average production days	Unclear reference to regular cleaning (what is cleaned?)

2.5.5 Appendix

Table 13: SpERC ACEA sanding - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

3 SPERC AISE 5.1 – CONVERSION COATING

3.1 General characterization of spERC

The FS AISE 5.1: “Industrial use of metal salts in conversion coating” covers two sub-spERCs which differ by the covered metals. It is available as revised version dated October 2012.

The applicability domain is explained with process examples and it is limited to operations connected to a municipal STP. Only metal salts are covered.

The OCs are described with general parameters such as location of use, the existence of water contact and the degree of volatilization. Background information is provided.

The RFs are justified logically based on the substance properties and the use and emission pattern.

Specific RMMs for the water pathway are provided including efficiencies for the two spERCs.

Background information is provided regarding the substance use rates.

3.2 Candidates for best practice identified in the spERC

The applicability domain is understandably described, includes examples of covered processes and explicitly names cleaning and maintenance. The CoU are limited by information on the substance domain and the connection to a local sewage treatment plant.

3.3 Shortcomings identified in the spERC

- The OCs are rather general and do not include information on the containment of the process or specific processing conditions.
- It is unclear if the RFs are applicable to all of the covered processes (broad applicability domain) characterized by the rather generic operational conditions.
- The justification of RFs is elaborated for each emission pathway, including waste. The arguments include consideration of substance properties and processing conditions. However, it is unclear why the RF to waste is so high, as the substances are assumed to be included in a matrix (ERC 5; sum of RFs equals 100% of substance input).
- The information that spent processing fluids are to be disposed of as chemical waste is only given in the justification of the RFs and the CHESAR determinants but not in the sections on OCS and/or RMMs in the factsheet.
- There are two operating states: continuous operation with release to wastewater and exchange of baths after disposal. Each is connected to a different use rate (peaks at exchange of bath). Whereas the continuous operation state is well described, the exchange of bathes is not sufficiently well explained.

3.4 Conclusions from screening

The spERC FS AISE 5.1: “Industrial use of metal salts in conversion coating includes only general information on the processing conditions but lists the processing steps in detail. The argumentation on RFs is well developed and only minor issues appear to be inconsistent or not explicit enough. The RFs appear quite conservative, as inclusion in the matrix is not quantitatively accounted for (sum of RFs = 100%). The disposal of spent fluids as chemical waste is not explicit enough. It is unclear, if the spERC is plausible and/or if RFs could be specified more with regard to the high number of different application processes covered.

3.5 Detailed assessment results

3.5.1 Applicability domain

Table 14: SpERC AISE Me-salts in conversion - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of Metal Salts in Conversion Coating	Title unambiguous?	Yes
		Title consistent with scope?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes
Scope	Process examples, supporting processes, discharge to wastewater, substances = metal salts	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Yes Exclusion of processes not discharging to wastewater, only coverage of metal salts
		Cleaning and maintenance explicitly mentioned?	Yes
UDs	SU, ERC, PROCs, PC	Do UDs reflect title and scope?	Yes
OCs	Indoor, water-based, discharge to WW, background info	OCs consistent with title and scope?	Yes Background contains additional information on the re-use of rinsing water
Narrative	Repeats section "Scope"	Domain narrated understandably?	Yes
		Domain consistent with "Title" and "Scope"?	Yes

3.5.2 Operational conditions and release factors

Table 15: SpERC AISE Me-salts in conversion - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of Metal Salts in Conversion Coating	Title consistent with the OCs?	Yes
Scope	Process examples, supporting processes, discharge to WW, substances = metal salts	OCs worded as in "OCs section"?	Yes
UDs	PROCs	PROCs reflect OCs?	Yes
OCs	Indoor, water-based, discharge to WW, background information	OCs concise and understandable?	Mostly Not clear what is meant with "product"; negligible volatilization not defined (aerosol formation excluded in spraying?)
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	Yes OCs allow deducing RFs; quantification in relation to RMMs not explicit (release to water and waste).
		OCs State-of-the-Art?	Not applicable Too general conditions to judge
Obligatory RMMs	Specific measures with efficiency	RMMs fit to main emission pathway(s)?	Yes
Release factors	Air, water, soil and waste with qualitative justification	Value plausible in relation to OCs?	Yes
		Justification of RFs sufficient and can be followed?	**RF to air** Additional information may be useful, e.g. vapour pressure of Me-salts and exclusion of aerosol formation (e.g. by limitation of scope). Other RF: justification sufficient, however values conservative (sum = 100% for ERC 5 with substance inclusion in matrix)
		Method of RF derivation	Not applicable

Section	Relevant FS content	Assessment criteria	Assessment result
		described and understandable?	Logical argumentation
		Differentiation by properties plausible?	Not applicable
Narrative	Repeats section "Scope"	OCs simple & consistent with other sections?	No additional information on OCs
		OC descriptions support understanding?	
		Additional useful info on OCs provided?	

3.5.3 Risk management measures and their efficiencies

Table 16: SpERC AISE Me-salts in conversion - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Discharge to wastewater	RMM info consistent with "Obligatory RMMs"?	Not applicable Title refers to discharge to STP, "Obligatory RMM" refer to on-site treatment before discharge.
Obligatory RMMs	Specific measures with efficiency	RMM info concise and understandable?	Yes
		Clear if RFs apply with or without RMMs?	Yes
		Explicit if RMMs are not needed?	No No information that air RMMs are not required; No info housing in spray applications (as mentioned in justification of RFs)
		RMM efficiency provided?	Yes
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes
		Information source on RMM provided?	No
Narrative	Repeats section "Scope"	RMM info concise and understandable?	No additional information on RMMs
		RMM info supports understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	

3.5.4 Days emitting

Table 17: SpERC AISE Me-salts in conversion - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220	No confusion with working days of workers (e.g. 220); correspondence to average production days	No information source, unclear if mixed with working days of workers.

3.5.5 Appendix CHESAR

Table 18: SpERC AISE Me-salts in conversion - appendix (CHESAR import)

Section	Relevant FS content	Assessment criteria	Assessment result
Appendix	Water based, indoor, disposal as chemical waste, discharge to wastewater, reuse of rinsing water, physical chemical treatment	Information in Appendix corresponds to information in factsheet	Re-use of rinsing water and disposal as chemical waste not explicit in the FS

3.5.6 Appendix MspERC – Derivation

The appendix is confusing as there are “numbers in parentheses” mentioned which do not exist and the operational conditions. Table 1 refers to the formulation of granular cleaning and maintenance products rather than the use of metal salts.

4 SPERC AISE 4.1 – PROCESSING AIDS

4.1 General characterization of spERC

The FS AISE 4.1 „Industrial use of Water Borne processing Aids – no RMM“ has no sub-spERC and is available in a revised version dated October 2012.

The applicability domain is very general and described as “broad range of specific applications” with several examples.

The OCs are provided specifying several processing characteristics at general level (location of use, water based, discharge to WW) which determine the environmental release.

The RFs are justified with view to product types and their use and emission pattern. No RF to waste is provided.

Information on RMMs is provided.

Background information is provided regarding the substance use rates.

4.2 Candidates for best practice identified in the spERC

No aspects identified

4.3 Shortcomings identified in the spERC

- The description of the spERC’s coverage (sections scope, use descriptors, narrative description, scaling and appendix) is not fully consistent and undefined terms are used.
- The applicability domain is very general and the operational conditions are very general.
- The RF to water is very conservative (100%) and no RMMs is included.
- The RFs to air and soil are (significantly lower) as in the ERC and lack clear and transparent justification. In particular due to the large coverage of the spERC, more detailed arguments (or OCs excluding respective emission) should be provided to demonstrate lack of

significant emissions. The information that spray applications are housed in should be included in information on RMMs.

- There is no RF to waste although waste could be one major emission pathway in case of closed processing.

4.4 Conclusions from screening

The spERC covers a wide range of applications and the applicability is very broad which is reflected by the partly conservative emission factors. The justification for non-conservative RFs is not sufficient. It is unclear, if safe use can be demonstrated without RMMs and if hence, the spERC is useful for registrants or if the use should be divided into several uses with respective factsheets.

4.5 Detailed assessment results

4.5.1 Applicability domain

Table 19: SpERC AISE processing aids - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of water borne processing aids – no RMM	"Title" unambiguous?	Partly Title is very broad; therefore coverage is not fully clear. In combination with PC 35 the scope would be clearer.
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes Specification of "no RMM" would be 3rd identifier
Scope	Examples of applications	Description concise and simple?	Yes Potential confusion could arise, as vehicle cleaning may not be understood as industrial processing. AISE indicated clarification needs regarding the definition of an industrial process (permit exists, technical emission controls can be implemented, little manual handling). Respective information is provided in the CEFIC guidance; hence no further action is necessary in the spERC. If the wording of the PC 35 would be included in the scope, the applicability domain would be clearer.
		Users, substances, products, processes specified or excluded?	No Would be helpful to have examples of processes which are not covered under the scope.
		Cleaning and maintenance explicitly mentioned?	No It is unclear, if cleaning and auxiliary processes are covered.
UDs	SU, ERC, PROCs and PCs	UDs reflect "Title" and "Scope"?	Partly Some PROCs relate to formulation processes, which are not listed in the scope
OCs	Indoor; water based, negligible volatilization, WW emissions	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Detailed but generic	Domain narrated understandably?	Narrative is consistent with scope and use descriptors and adds useful explanation enabling to visualize the

Section	Relevant FS content	Assessment criteria	Assessment result
	description of process		processes and decide if the spERC is applicable.
		Domain consistent with "Title" & "Scope"?	Yes

4.5.2 Operational conditions and release factors

Table 20: SpERC AISE processing aids - operational conditions

Section	FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of water borne processing aids – no RMM	Title consistent with the OCs?	Yes
Scope	Examples of applications	OCs worded as in "OCs"?	Yes But, undefined term "negligible" and conditions are generic.
UDs	PROC	PROCs reflect OCs?	Yes
OCs	Indoor; water based, negligible volatilization, wastewater emissions	OCs concise and understandable?	Partly Only general use conditions clarified, no processing steps or actual conditions specified. OCs are based on "sector specific classification of detergent formulation sites" → not understandable without explanation (which is missing) or knowing the original source (no link or reference provided)
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	Partly Main emission pathway to water and lack of soil emissions obvious. Quantitative relations cannot be deduced.
		OCs State-of-the-Art?	Cannot be judged OCs are only generically described, no judgement possible
		Other observations	Optimized water use not included in FS but in Appendix
Obligatory RMMs	typical onsite WWTP, no air	RMMs fit to main emission pathway(s)?	Unclear RMM presentation not clear for water pathway
Release factors	Air, water and soil, logical justification based on PC and PROC as well as substance properties	Value plausible in relation to OCs?	Yes
		Justification of RFs sufficient and can be followed?	Partly No limitations regarding substances' volatility in aqueous processing aids, hence it is not plausible that there should not be any volatiles contained.
		Method of RF derivation described and understandable?	Yes Conservative defaults based on logical arguments (yes/no)
		Differentiation by properties plausible?	Not applicable
		Other observations	No RF to waste defined; an RF to waste equalling that to water would be consistent for closed processing (c.f. narrative)
Narrative	Detailed but generic description of process	OCs simple & consistent with other sections?	Yes
		OC descriptions support understanding?	Yes
		Additional useful info on OCs provided?	Yes Different processing options, e.g. continuous application or cleaning baths, closed process and disposal as waste etc.

4.5.3 Risk management measures and their efficiencies

Table 21: SpERC AISE processing aids – risk management measures

Section	FS content	Assessment criteria	Assessment result
Scope	Examples of applications	Is RMM info consistent with "Obligatory RMMs"?	Yes / No Information provided in the title, not fully consistent as RMMs are mentioned in several sections, such as the narrative and the RMM section (unclear description)
Obligatory RMMs	None for air, unclear for WW site	RMM info concise and understandable?	No Measures for water pathway with efficiencies marked as either N/A (on-site WWTP) or with "-". In the narrative it is stated that RMMs may or may not be necessary.
		Clear if RFs apply with or without RMMs?	Yes
		Explicit if RMMs are not needed?	Unclear Information is ambiguous although users are more likely to assume no RMMs are obligatory to use RFs.
		RMM efficiency provided?	No
		RMMs fit to OCs, PCs and substances?	Partly It is expected that the registrant selects RMMs if necessary for iteration, therefore no specific advice is given
		RMMs State-of-the-Art?	Not applicable No specific RMMs provided
		Information source on RMM provided?	Not applicable
Narrative	Detailed but generic description of process	RMM info concise and understandable?	No Title mentions "no RMM", narrative appears contradicting. If spent processing fluids are discharged to wastewater RMM may be necessary, which is a contradiction to the scope of the spERC (no RMM). If RMMs are applied, the emission days may be wrong as wastewater would be stored and released only periodically.
		RMM info supports understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	Yes Closed processing could exist where wastewater would be disposed of as chemical waste

4.5.4 Days emitting

Table 22: SpERC AISE processing aids - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220, working days based on sector knowledge	No confusion with working days of workers (e.g. 220); correspondence to average production days	Confusion with workers working days (not emission days from installation) possible.

4.5.5 Scaling information

The scaling information implies that the user may change the input information on use amount (M_{spERC}), the efficiency of the risk management measures ($E_{ER,spERC}$), the release factor ($F_{release,site}$) and the dilution factor ($q_{Dil,spERC}$).

The scaling formula is explained to be applicable for continuous release and the discharge of spent processing fluids.

It is questionable to propose the release factor as scalable parameter of a spERC, because this would require a change of the basic justification and the factsheet as such would not be applicable.

4.5.6 Appendix

Table 23: SpERC AISE processing aids - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Process type, indoor/outdoor, waste generation and process efficiency	Information in Appendix corresponds to information in factsheet	The process efficiency (optimized water use) is no mentioned in the FS before The phrases include undefined terms (negligible volatilization, optimized water use)

5 SPERC AISE 8A.1 –WDU CLEANING

5.1 General characterization of spERC

The FS AISE 8a.1 “Wide dispersive use of cleaning and maintenance products” covers three sub-spERCs (differentiation by product type). It is available as revised version dated October 2012. All sub-spERCs are covered in this analysis.

The applicability domain is very broad and characterized by the product types and user groups.

The OCs are the same for two of the sub-spERCs but different for the third; they differ in the main emission pathway.

The RFs to air and water are justified logically based on the product category and their use and emission pattern as well as the substance properties. RFs to soil and waste are not mentioned.

RMMs are stated as “not required”.

Background information is provided on the substance use rate, which is modified from the standard use rate in the region recommended by the ECHA guidance.

5.2 Candidates for best practice identified in the spERC

The modification of the substance use rate for wide dispersive use is well documented and supported by studies on population density and product usage. This approach can be regarded as sufficient to justify a use rate for wide dispersive use which differs from the standard assumptions of the ECHA guidance[32].

The derivation of release factors based on substance properties and product use pattern are plausible and conservative.

[32] It should be noted that the use of a safety factor of 1.5 is not documented in the background information which makes it difficult to follow the entire argumentation.

5.3 Shortcomings identified in the spERC

- Three sub-spERCs are contained in one FS with two sets of OCs. For reasons of clarity the FS should be separated so that only one set of OCs is described per FS.
- The operational conditions are very general. Processing examples are not given and there are also no exclusions of application techniques, which could be expected with view to the large number of product types.
- Some PROCs appear to be rather for industrial than for professional use (e.g. closed processing); the PCs are partly inconsistent (list of examples under adhesives and sealants).
- There is no justification for RFs with the value of „zero“ as emissions do take place to the respective compartment (negligibility of emission not supported)
- No RF to soil is contained; the OC of “indoor use” suggests that soil emissions do not occur; however, this should be once clearly stated.
- There is not RF to waste.
- The narrative does not contain information on the applicability of the spERC
- The CHESAR import information on location of use contradicts the operational conditions

5.4 Conclusions from screening

The information in the factsheet as such is clear and concisely described. The applicability domain is very broad (many different product types and PROCs) and unclear in relation to the user groups. Due to the broad scope and the conservative RFs, many uses are likely to be covered; it is however unclear if safe use can be demonstrated using the conservative values in the spERC.

5.5 Detailed assessment results

5.5.1 Applicability domain

Table 24: SpERC AISE 8a.1 wdu cleaning and maintenance - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Wide dispersive Use of Cleaning and Maintenance Products	“Title” unambiguous?	No It is not clear what maintenance products are.
		“Title consistent with “Scope”?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes
Scope	Substances in	Description concise and simple?	Yes[33]

[33] There is likely to be a mistake in the wording, which is “[…] use of substances *in solvents* in cleaning […]” which should supposedly be “[…] use of substances in cleaning […]”

Section	Relevant FS content	Assessment criteria	Assessment result
	cleaning and maintenance products for professionals and consumers	Users, substances, products, processes specified or excluded?	Yes / No In addition to the title, the user groups are mentioned and the PCs and substances groups determining the sub-spERC.
		Cleaning and maintenance explicit?	Yes Products are explicitly meant for cleaning and maintenance.
UDs	PROCS for professional use; PCs for consumer use	UDs reflect "Title" and "Scope"?	Partly Some PROCs not suitable for professional users, e.g. those including closed processes.
OCs	Different OCs for sub-spERCs; indoor, emission pathway, no emission control	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Text block on calcu-lation model for risk characterisation?	Domain narrated understandably?	No information on applicability domain
		Domain consistent with "Title" and "Scope"?	

5.5.2 Operational conditions and release factors

Table 25: SpERC AISE 8a.1 wdu cleaning and maintenance - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Wdu of Cleaning and Maintenance Products	Title consistent with OCs?	Yes
Scope	Cleaning and maintenance for professionals and consumers	OCs worded as in "OC section"?	Yes
UDs	PROCS for professional use; PCs for consumer use	PROCs / PCs reflect "OCs"?	No PROCs 1, 2, 3, 4 and 8b are not appropriate for professional users
OCs	Different OCs for sub-spERCs; indoor, emission pathway, degree of emission control	OCs concise and understandable?	Yes
		OCs consistent with other sections?	Yes
		Influence of OCs on release explicit?	Yes Emission pathway is precondition for sub-spERC selection; PC suggests main emission pathway However, unclear if suitable for all potentially covered uses
		OCs State-of-the-Art?	Not applicable
Obligatory RMMs	Not required	RMMs fit to main emission pathway(s)?	Not applicable as no RMMs are required
Release factors	Initial RF; air, water; logical justification	Value plausible in relation to OCs?	Yes
		Justification of RFs sufficient and can be followed?	Yes
		Method of RF derivation described and understandable?	Not applicable Logical arguments provided based on product category and use pattern
		Differentiation by properties plausible?	Yes
		Other observations	RF soil and waste are missing.
Narrative	Text block on calculation model for risk characterisation	OCs simple & consistent with other sections?	No information on OCs contained
		OC descriptions support understanding?	
		Additional useful info on OCs provided?	

5.5.3 Risk management measures and their efficiencies

Table 26: SpERC AISE 8a.1 wdu cleaning and maintenance - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Cleaning & maintenance products professionals and consumers	Is RMM info consistent with "Obligatory onsite RMMs"?	Not applicable
Obligatory RMMs	Not required	RMM info concise and understandable?	Yes
		Clear if RFs apply with or without RMMs?	Yes
		Explicit if RMMs are not needed?	Yes
		RMM efficiency provided?	Not applicable
		RMMs fit to OCs, PCs and substances?	Not applicable
		RMMs State-of-the-Art?	Not applicable
		Information source on RMM provided?	Not applicable
Narrative		RMM info Concise and understandable?	No information on RMMs
		RMM info supports understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	

5.5.4 Substance use rate

The A.I.S.E. spERC FS on wide dispersive use of cleaning and maintenance products contains non-default factors for the substance use rate: The fraction of the total EU tonnage used in the region is set to the value of 0.04 ($F_{prod,region}$). The fraction of the regional tonnage used locally is set to 0.00075.

A justification for changing $F_{prod,region}$ is given in the FS and the value is calculated as described in the ECHA guidance:

$MT_{region} = MT_{EU} \times F_{region}$
MT_{region} = tonnage of a substance used in a 200 x 200 km grid inhibited by 20 million people
MT_{EU}: Amount of the substance produced within the EU
F_{region}: Factor for a wide dispersive use, default in ECHA guidance= 10 % (0.1).

A.I.S.E. has chosen an approach to refine F_{region} by using sector knowledge on actual use rates by consumers. Therefore data on EU_{27} product usage for five different sector specific product types is used in a calculation of an average per capita consumption (PCC) of the specific products. These data are based on sales and population density data. Reference is made in the fact sheet to a study outlining the derivation method in detail. This is regarded as sufficient for the fact sheet.

By extrapolating the PCC to the model region of the ECHA guidance a specific $F_{prod,region}$ is calculated.

$MT_{region,AISE} = PCC * 20$ Mio [L/a]

Further extrapolation to the MT with subsequent calculation of MT by using the default of 10 % leads to an actual refinement of MT_{region} by a factor of ~2.5 [34]. By weighting the individual shares of the different product types an average $F_{prod,region}$ is calculated for this spERC.

[34] The use fraction of 4% for homecare products in a region is stated as to be conservative by A.I.S.E. and represents the 99.5th percentile worst case.

The methodological approach of deriving the $F_{prod,region}$ for the spERC is in line with the ECHA guidance. To verify if the assumptions on sales and PCC are consistent it would be useful to have access to the background data.

The derivation of the fraction of the regional tonnage used locally to 0.00075 is not further explained in the fact sheet. The general equation for the factor is:

$F_{regional}$ tonnage used = $n_{inhabitans,region}/n_{inhabitans,standard\ town}$ x 4 *with:*
$n_{inhabitans,region}$= 20,000,000 Persons in the region
$n_{inhabitans,standard\ town}$= 10,000 Persons in a standard town
4 = security factor, can be refined up to 1 with suitable supporting data.

In discussions with the experts it was clarified that the value of 0.00075 has been derived by setting the security factor to 1.5. The experts answered that justification for that factor is provided in a study (Fox et al. (2002))[35]: it was found that measured influent boron concentrations from 48 STPs in the UK, Italy, Germany, and the Netherlands were within a factor of 1.5 of estimated values derived from regional sales volumes. The mean of the measured to the calculated boron ratio was 1.05 and the 90th percentile was 1.49, which suggested that even in a worst-case scenario the local STP is unlikely to receive more than 1.5 times the average STP substance input[36].

5.5.5 Days emitting

Table 27: SpERC AISE 8a.1 wdu cleaning and maintenance - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	365	No confusion with working days of workers (e.g. 220); Correspondence to average production days	Logical; product use by consumers and professionals is daily

5.5.6 Appendix

Table 28: SpERC AISE 8a.1 wdu cleaning and maintenance - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Determinants: Type of process, daily use amount, indoor/outdoor use, waste generation	Information in Appendix corresponds to information in factsheet	No Indoor AND outdoor use contradicts the operational conditions and could also lead to considerable emissions to soil, which are not reflected by an RF

[35] Fox KK, Cassani G, Facchi A, Schroder FR, Poelloth C, Holt MS. 2002. Measured variation in boron loads reaching European sewage treatment works. Chemosphere 47:499–505. The study was not assessed during the project (2010 UBA).

[36] The explanations were not assessed in detail, yet. So it was not assessed from which sources boron was emitted to the STP and if the measurement results from the single substance can be extrapolated to other substances. Regarding the transparency of documentation it can be stated that the explanation is based on scientific assessment and are available on request and could hence be evaluated.

6 SPERC ATIEL – ATC 4.FI.V1 – LUBRICANTS INDUSTRY

ATIEL spERCs are provided mainly to support formulators in developing information on safe use for their mixtures; they are not specifically addressed to registrants.

6.1 General characterization of spERC

The factsheet ATIEL – ATC 4.Fi.v1: "Industrial use of lubricants in high energy open processes" is available as version one of May 2012.

The applicability domain is explained using process examples and limiting the scope to "typical constituents of lubricants and metal working fluids".

The operational conditions are specified as either water-based or oil-based process.

The release factors are derived based on a survey by ATIEL-ATC and the OECD ESD.

RMM assumptions are based on "typical sector practices" consistent with the OECD ESD.

The spERC information is supported by a GES and background documentation on ATIEL's website.[37]

6.2 Candidates for best practice identified in the spERC

No aspects identified.

6.3 Shortcomings identified in the spERC

- The title and scope are not understandable to all spERC users; whereas the type of "high energy open process" is explained with examples, it is not clear what a "typical constituent of a lubricant and metal working fluid" is.
- The OCs only specify if the process is oil-water or oil-based but does not make the processing conditions more specific. Neither emission pathways nor other process characteristics are described.
- The RFs are stated to be based on a sector questionnaire. No information on which types of processes were covered, how many answers were received, how the information was derived (measurement, substance flow analysis) and which method was applied to derive the final RFs.

[37] The document on emission estimation from lubricants was requested by e-mail but no reply was obtained by the time of submission of this report.

- The RF values are not plausible as no differences exist for substances with different properties[38].
- No RF to waste is provided.
- Obligatory RMMs are named only for the water pathway although due to the open processing also RMMs to air could be necessary (no respective information provided).
- RMMs efficiencies are only given in the section on additional RMMs for water and for air; for the later also a technology combination is included.
- No narrative is contained in the fact sheet. Hence, further explanation about the process and how it is carried out is not provided.

6.4 Conclusions from screening

The ATIEL spERC has a broad scope and the operational conditions included in the factsheet do not fully clarify which processes are covered and which are not. The RFs are based on industry survey data but no background information on how the data was collected and processed is provided. The factors published in the GES tables for the environment cannot be followed and appear not plausible at first sight.

6.5 Detailed assessment results

6.5.1 Applicability domain

Table 29: SpERC ATIEL lubricants in high energy open processes- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of lubricants in high energy open processes	"Title" unambiguous?	No "High energy open process" not understandable to all potential spERC users
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes
Scope	Process examples, substance domain = typical constituents of lubricants	Description concise and simple?	No Repetition of title, unclear what "typical constituents" are and which substances do not fall under the substance domain
		Users, substances, products, processes specified or excluded?	No Examples are provided of the processes
		Cleaning and maintenance explicitly mentioned?	No
UDs	SU, PROCs	UDs reflect "Title" and "Scope"?	No PROCs 1 and 2 refer to closed processes
OCs	Properties of product	OCs consistent with "Title" and "Scope"?	Partly Addresses type of lubricant in the process
Narrative	No narrative	Domain narrated understandably	Not applicable
		Domain consistent with "Title" and "Scope"	

[38] According to the ATIEL approach of developing GES, substances are clustered into groups according to their toxicity and physical-chemical properties. The release factors do not differ between the groups, however.

6.5.2 Operational conditions and release factors

Table 30: SpERC ATIEL lubricants in high energy open processes - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use high energy open process	Title consistent with the OCs?	Yes
Scope	Process examples	OCs worded as in "OC section"?	Not applicable OCs cover other aspects of the use
UDs	PROCs	PROCs reflect "Operational conditions"?	No OCs do not refer to the processes but the nature of the products used (water-oil or oil)
OCs	Properties of product	OCs concise and understandable?	Partly OCs are concise but the nature of a "high energy open process" is not specified The background documentation[39] states that RFs are conservative and differences in common practices at sites are assumed; hence no more differentiation of OCs seems to be intended.
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	No
		OCs State-of-the-Art?	Cannot be judge OCs are too general and do not specify the process
Obligatory RMMs	Oil/water separators or equivalent, discharge to municipal STP	RMMs fit to main emission pathway(s)?	Yes
Release factors	Air, water, soil	Value plausible in relation to the specified OCs?	No / partly **Air** Aerosols and air emission possible, without RMMs RF may be too low **Water:** RF derived from OECD ESD assuming sector practices and fulfilment of regulatory requirements after RMM **Soil** Outdoor uses and resulting soil emissions possible **Waste:** RF is missing
		Justification of RFs sufficient and can be followed?	No RFs are from data of sector survey and provided as value table. Information on the database (number and type of participants, reported data etc.) is not described. RF calculation method is not described. Although substances with different vapour pressures are included in the value tables to fill GES, all RFs to air are the same[40] **Soil** Unintentional release to soil during processes (if carried out outdoor) not explicitly excluded, hence emissions could occur **Waste:** no justification for missing RF
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	No Different properties do not result in different RFs

[39] ATIEL: Document 5b

[40] ATIEL: Document 7. Release after RMM to water depends on the log Kow (differentiated as lower or above 5) and the release to air depends, among other, on the vapour pressure (lower or above 1 Pa); no RMMs are specified.

6.5.3 Risk management measures and their efficiencies

Table 31: SpERC ATIEL lubricants in high energy open processes – risk management measures

Section	FS content	Assessment criteria	Assessment result
Scope	Process, substance domain	Is RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	Oil/water separators, no efficiency, discharge to municipal STP	RMM info concise and understandable?	Yes No specification
		Clear if RFs apply with or without RMMs?	Partly Unclear for air emissions
		Explicit if RMMs are not needed?	Not applicable
		RMM efficiency provided?	No However, mechanism is provided
		RMMs fit to OCs, PCs and substances?	Partly No statement on air emissions
		RMMs State-of-the-Art?	Yes Can only be judged for water
		Information source on RMM provided?	Partly Information on RMMs in OCs
		Additional observations	Optional RMMs are provided in a separate section including for air (wet scrubber and thermal oxidation for waste gas treatment) and for oil/water separators an efficiency of at least 90-95% is specified.
Narrative	No narrative	RMM info concise and understandable?	Not applicable
		RMM info supports understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	

6.5.4 Days emitting

Table 32: SpERC ATIEL lubricants in high energy open processes - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	100 -300 days/year	No confusion with working days of workers (e.g. 220); correspondence to average production days	ECHA default value

6.5.5 Appendix

Table 33: SpERC ATIEL lubricants in high energy open processes - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

7 SPERC ATIEL – ATC 8.CC.V1 – LUBRICANTS CONSUMERS

ATIEL spERCs are provided mainly to support formulators in developing information on safe use for their mixtures; they are not specifically addressed to registrants.

7.1 General characterization of spERC

The factsheet ATIEL – ATC 8.Cc.v1: "Consumer use of lubricants and greases in open systems" is available as Version 1 of February 2012.

The applicability domain is explained with a general description of how consumers could apply lubricants to work pieces or equipment and limiting the scope to "typical constituents of lubricants and metal working fluids".

In the section on operational conditions it is specified that the use leads to air and water emissions.

The release factors are derived from an A-Table of the EU TGD.

Only off-site RMMs (municipal STP) are specified.

The spERC factsheet is supported by background documentation on ATIEL's website.

7.2 Candidates for best practice identified in the spERC

No aspects identified.

7.3 Shortcomings identified in the spERC

- The title and scope are understandable; however, the substance domain is unclear ("typical constituent of a lubricant and metal working fluid").
- The operational conditions only refer to emission pathways but do not specify any operational condition. Further information on the application techniques of lubricants and greases could be included.
- Obligatory RMMs are not applicable for consumer uses; nevertheless making this explicit would be useful in the spERC. Instead, the respective fields are empty.
- As outdoor uses are covered by the spERC (ERC 8d), emissions to soil could occur, which are not mentioned in the OCs.
- The RFs are derived from the A-tables of the EU TGD, which is not a sufficiently well documented and justified information source. No discussion of why these RFs are applicable is included in the FS.
- No RF to waste is provided.
- No narrative is contained in the fact sheet. Hence, further explanation about the process and how it is carried out is not provided.

7.4 Conclusions from screening

The ATIEL spERC has a broad scope, the operational conditions included in the factsheet are very general and hence do not fully clarify which lubricant / grease uses are covered (or if any use is included). The specification of emission pathways in the OCs is incomplete and the RFs are derived from the EU TGD A-tables, which are not regarded as sufficient justification.

7.5 Detailed assessment results

7.5.1 Applicability domain

Table 34: SpERC ATIEL Consumer use of lubricants - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Consumer use of lubricants and greases in open systems	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes
Scope	Examples of use, substance domain = typical constituents of lubricants	Description concise and simple?	Partly Examples are clear but it is unclear what "typical constituents" are and why consumers would "take samples".
		Users, substances, products, processes specified or excluded?	Partly Examples of processes and specification of users are provided but no exclusions are listed
		Cleaning and maintenance explicit?	Partly Maintenance yes, cleaning no.
UDs	SU	Do UDs reflect "Title" and "Scope"?	Yes Only SU specified. Information on PC could be added
OCs	Emissions pathways	OCs consistent with "Title" and "Scope"?	Partly Consumer use is repeated, emission pathways correspond to "open system"; however as outdoor use is not excluded also soil emissions could occur.
Narrative	No narrative	Domain narrated understandably?	Not applicable
		Domain consistent with "Title" & "Scope"?	

7.5.2 Operational conditions and release factors

Table 35: SpERC ATIEL Consumer use of lubricants - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Consumer use in open systems	Title consistent with the OCs?	Partly Consumer use is repeated, emission pathways correspond to "open system"; however as outdoor use is not excluded also soil emissions could occur.
Scope	Examples of use	OCs worded as in "OC section"?	Not applicable OCs only specify emission pathways
UDs	SU	PROCs reflect "OCs"?	Not applicable No PROCs specified
OCs	Emissions pathways	OCs concise and understandable?	Yes / No General emission pathways are clear, however no information on what actually happens with the chemicals
		OCs consistent with other sections?	No Potential emissions to soil are not included although

Section	Relevant FS content	Assessment criteria	Assessment result
			RFs are provided (c.f. below)
		Influence of OCs on release made explicit?	No
		OCs State-of-the-Art?	Not applicable to consumer uses
Obligatory RMMs	Empty fields	RMMs fit to main emission pathway(s)?	Not applicable Consumer use
Release factors	Air, water, soil	Value plausible in relation OCs?	No As the processes are open and no specifications of substance properties or limitations of OCs are provided, the comparatively low release factors are not plausible.
		Justification of RFs sufficient and can be followed?	No RFs are derived from the EU TGD; for RF air the worst case is taken. EU TGD is not an acknowledged information source for release factors. **Waste:** no justification for missing RF
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable

7.5.3 Risk management measures and their efficiencies

Table 36: SpERC ATIEL Consumer use of lubricants – risk management measures

Section	FS content	Assessment criteria	Assessment result
Scope	Use examples	RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	Empty field	RMM info concise and understandable?	No Unclear if incomplete or no RMMs needed
		Clear if RFs apply with or without RMMs?	Yes As there are no RMMs specified
		Explicit if RMMs are not needed?	No
		RMM efficiency provided?	Not applicable
		RMMs fit to OCs, PCs and substances?	Not applicable
		RMMs State-of-the-Art?	
		Information source on RMM provided?	
		Additional observations	It is assumed that emissions to water reach the sewage system. This may not be the case for outdoor uses. It is confusing that this information is provided under the section "appropriate RMMs that may be used".
Narrative	No narrative	RMM info concise and understandable?	Not applicable
		RMM info supports the understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	

7.5.4 Days emitting

Table 37: SpERC ATIEL Consumer use of lubricants - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	365	No confusion with working days of workers (e.g. 220); correspondence to average production days	OK, consumer use

7.5.5 Appendix

Table 38: SpERC ATIEL Consumer use of lubricants - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

8 SPERC CEPE 2.2 - FORMULATION

8.1 General characterization of spERC

The FS CEPE 2.2 “Manufacture of water borne liquid coatings and inks“ is available as version 1 of October 2010. It covers 3 sub-spERCs which are differentiated by the type of substances (volatiles and solids) and the installation size characterized by the annual solvent use. All three sub-spERCs contained are discussed in the following.

The applicability domain is described by the process (entire formulation process) and the product types (water-borne coatings and inks).

The operational conditions are specified as „optimized for highly efficient use of raw materials“.

The release factors to air are based on the maximum allowed VOC emissions according to the Solvent Emission Directive (total VOCs) and the OECD ESD modified by expert judgment for individual solvents. The RFs to water are based on the OECD ESD. A RF to soil is not provided. No RF to waste is defined.

Several RMMs are listed; however without efficiency values.

A background note is provided on the internet with a flow scheme of the process steps of formulation.

8.2 Candidates for best practice identified in the spERC

The titles of the sub-spERCs and the background document outlining the processing steps and variants of how they could be performed are understandable to experts of the sector and persons without respective knowledge.

The language of the factsheet is in general concise and well understandable to experts as well as users not knowledgeable of the sector.

8.3 Shortcomings identified in the spERC

- The processing steps and coverage of cleaning and maintenance are not clear from the FS. Respective information could be included from the background document.
- The OCs are not specific and hence do not sufficiently contribute to the justification of the release factors.
- The statement "optimized for raw material efficiency" is not regarded as OC. Instead, the conditions leading to high raw material efficiency should be described, as partly implemented in the narrative section.
- Some information on the OCs is contained in the section on RMMs but it is unclear if they are precondition to applying the RFs or only optional[41].
- The list of RMMs is specific but it is neither clear if and which of these should be implemented and which individual efficiency they have.
- It is not clear if the RFs apply under the condition that some of the mentioned RMMs are implemented or not.
- The RFs for total VOC are not useful for the substance based assessment approach under REACH.
- No discussion of OCs assumed in the spERC and those underlying the ESD from which RFs are derived are provided.
- The reasoning for the RFs to air, which have been derived from expert judgment, is not documented.
- A justification for the lack of a RF to soil is missing.
- No RF to waste is provided.

8.4 Conclusions from screening

The CEPE spERC is consistent in itself but, due to the lack of a clear description of OCs and obligatory RMMs it is difficult to judge on consistency and plausibility of RFs. The justification of RFs is not sufficient.

8.5 Detailed assessment results

In the CEPE factsheet the operational conditions are mentioned as "process optimized for highly efficient utilisation of raw materials". This is an expression alluding to a technical strategy to minimise losses from the process but does not specify, what OCs (and RMMs) are actually in place. Hence, many of the assessments referring to the operational conditions have two answers in the following tables; one within the factsheet logics and one, where a different type of information on OCs is expected.

[41] A different understanding of OCs/RMMs than in the ECHA guidance (and applied in the screening assessment) may be the reason for a different sorting of information.

8.5.1 Applicability domain

Table 39: SpERC CEPE 2.2. Manufacture of coatings- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Manufacture of water borne liquid coatings and inks	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	No
		Title in line with ENES short titles?	Yes
Scope	Full formulation process	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Partly Mostly obvious from title, type of products could be listed (e.g. extract from background document)
		Cleaning and maintenance explicitly mentioned?	No / Yes Not explicitly mentioned but contained in the flow scheme of the background note
UDs	SU an PROCs	UDs reflect "Title" and "Scope"?	Yes
OCs	Process optimized, efficient raw materials use	OCs consistent with "Title" and "Scope"?	Yes / No Consistent in itself but insufficient clarification the process characteristics.
Narrative	Specification of "optimized pro-cessing" justify-cation of RFs	Domain narrated understandably?	Yes
		Domain consistent with "Title" and "Scope"?	Yes

8.5.2 Operational conditions and release factors

In CEPE's section "Appropriate RMM that may be used to achieve required emission reduction", several measures are listed which would rather be regarded as operational conditions, as their primary aim is to optimize processing. From the description it is not possible to conclude which of these measures are needed to achieve a "process optimized for efficient raw materials use", which is specified in the section on operational conditions.

Table 40: SpERC CEPE 2.2. Manufacture of coatings - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Manufacture of coatings & inks	Title consistent with OCs?	Yes Would be better to use "formulation" instead of "manufacture"
Scope	Full formulation process	OCs worded as in "OC section"?	Yes / No Wording consistent as different issues are addressed
UDs	PROCs	PROCs reflect "OCs"?	Yes
OCs	Process optimized for highly efficient utilisation of raw materials	OCs concise and understandable?	Yes / No "Highly efficient utilisation" not explained
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	No OCs not specified[42].
		OCs State-of-the-Art?	Unclear No specific OCs provided.

[42] According to the narrative description, at least general and plant extraction systems (including treatment of extracted air before release to the environment) and closed processes should be mentioned. The background document also includes differentiations according to the degree of automation or batch/continuous production.

Section	Relevant FS content	Assessment criteria	Assessment result
			CEPE stated that 10% of the installations do not fulfil the conditions of "efficient utilization".
		Other observations	OCs do not concretise the conditions of processing
Obligatory RMMs	Examples of techniques	RMMs fit to main emission pathway(s)?	Yes
Release factors	VOC, individual solvents, solids based on Solvent Emission Directive and OECD ESD	Value plausible in relation to OCs?	No No OCs are provided and relation between total VOC (compliance with Solvent Emission Directive) and values for individual organic solvents is not described. Unclear if and which RMMs need to be in place.
		Justification of RFs sufficient and can be followed?	No **RF air/water:** Similarity of conditions of use in spERC with those in OECD ESD not included; hence use of values is not justified; partial contradiction to narrative, where no emission to water is stated. **RF soil:** No justification of "no emissions" **RF waste:** not provided; hence no justification included
		Method of RF derivation described and understandable?	Yes / No Source provided, considerations of expert judgement not explained; for solids only air extraction but no information on treatment provided as justification.
		Differentiation by properties plausible?	Yes / No The higher the boiling point, the higher the air emissions; however the origin of factor 5.5 is not explained
Narrative	Specification of "optimized processing" and justification of RFs	OCs simple & consistent with other sections?	Yes
		OC descriptions support the overall understanding?	Yes / No "Optimized processing" is explained. Explanation that closure of processes "wherever possible" and product and process preventing emissions to soil and wastewater partly specifies "optimized processing" but leaves it unclear which conditions must be in place. "No emissions to wastewater" contradicts the RF to water for solids
		Additional useful info on OCs provided?	No

8.5.3 Risk management measures and their efficiencies

Table 41: SpERC CEPE 2.2. Manufacture of coatings – risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Full formulation process	RMM info consistent with "Obligatory RMMs"?	Yes No information
Obligatory RMMs	Examples of techniques	RMM info concise and understandable?	Yes / No Concise, understandable list; however details of operation not always provided Many of the measures could rather be regarded as OCs (optimize process and RMM is side effect).
		Clear if RFs apply with or without RMMs?	No Unclear, RMMs are "appropriate" and "could be applied"
		Explicit if RMMs are not needed?	Not applicable
		RMM efficiency provided?	Yes/No Process efficiency including RMM stated as 95% / 98% total VOC; no information on individual measures and individual organic solvents is provided. Efficiency of RMM for particulates provided. No information for water (STP)
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes

Section	Relevant FS content	Assessment criteria	Assessment result
		Information source on RMM provided?	No
Narrative	Specification of "optimized processing" and justification of RFs	RMM info concise and understandable?	No information on RMMs
		RMM info supports the understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	

8.5.4 Days emitting

Table 42: SpERC CEPE 2.2. Manufacture of coatings - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	225 based on sector knowledge	No confusion with working days of workers (e.g. 220); correspondence to average production days	Unclear Based on sector knowledge (225 is typical amount of working days in the UK)

8.5.5 Appendix

Table 43: SpERC CEPE 2.2. Manufacture of coatings - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

9 SPERC CEPE 8A.3A.V1 – SPRAYING PROFESSIONAL

9.1 General characterization of spERC

The FS CEPE 8: "Professional application of coatings and inks by spraying" covers 4 sub-spERCs differentiated by the location (indoor / outdoor) and the types of substances (volatiles / non-volatiles). Here, the sub-spERC 8a.3a.v1 professional spraying, indoor, volatiles is assessed.

The applicability domain is described by the process ("whole process") and the product types (organic solvent borne and water borne liquid coatings and inks) as well as the user group (professional users).

The operational conditions are specified as indoor and outdoor use leading to emissions to air and water without emission controls.

The release factors are justified with logical argumentation and the OECD ESD.

No obligatory but "appropriate RMMs that may be used are specified for air, water and soil" are provided.

A background note is provided on the internet with information on the application of paints and coatings.

9.2 Candidates for best practice identified in the spERC

The titles of the sub-spERCs and the background document outlining the processing steps and variants of how they could be performed are understandable to experts of the sector and persons without respective knowledge.

The language of the factsheet is in general concise and well understandable to experts as well as users not knowledgeable of the sector.

9.3 Shortcomings identified in the spERC

- Some of the PROCs relate to industrial and not professional uses (closed processing) and do not correspond to the process of spraying.
- The operational conditions do not describe or specify the processing conditions but only refer to the use location, the emission pathways and the lack of technical emission controls.
- The release factors are not sufficiently justified and, in particular with view to the broad scope and generically described operational conditions, are not plausible.
- No narrative is included with further information on the use or RMMs applied.

9.4 Conclusions from screening

The factsheet is not sufficient to demonstrate safe use as the scope is very broad and the release factors are not sufficiently justified. A narrative which could support the overall understanding of covered processes is missing.

9.5 Detailed assessment results

9.5.1 Applicability domain

Table 44: SpERC CEPE professional indoor spraying; volatiles- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Professional spraying indoor volatiles	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Main title yes, sub-spERC title no
Scope	Whole process, organic solvent borne and water borne coatings and inks, professional users	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Yes Users, product types; no specification of processes other than in title
		Cleaning and maintenance explicitly mentioned?	Partly No explicit coverage (only whole process)

Section	Relevant FS content	Assessment criteria	Assessment result
			but included in the background document to which reference is made
UDs	SU, PROCs	UDs reflect "Title" and "Scope"?	No PROCs 2, 3 and 4 do not relate to professional users
OCs	Indoor / outdoor, air & water emissions, no technical emission control	OCs consistent with "Title" and "Scope"?	Yes
Narrative	No narrative	Domain narrated understandably?	Not applicable
		Domain consistent with "Title" and "Scope"?	

9.5.2 Operational conditions and release factors

Table 45: SpERC CEPE professional indoor spraying - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Professional spraying, in-door, volatiles	Title consistent with OCs?	Yes However, OCs are very general and do not further describe the processing conditions.
Scope	Whole pro-cess, profess-sional users	OCs worded as in "OC section"?	Yes
UDs	PROCs	PROCs reflect "OCs"?	No All PROCs except PROC 11 relate to industrial indoor uses
OCs	Indoor and outdoor, emissions to air and water	OCs concise and understandable?	Yes However very generic
		OCs consistent with other sections?	Mostly Not consistent with use descriptors
		Influence of OCs on release made explicit?	No Only emission pathways listed; contradictions with RFs due to sub-spERCs differentiated by substance properties resulting in different emission pathways.
		OCs State-of-the-Art?	Cannot be judged OCs are only general
Obligatory RMMs	No respective section	RMMs fit to main emission pathway(s)?	Not applicable
Release factors	Air, water, soil, justification OECD ESD and logical argumentation	Value plausible in relation to the specified OCs?	**Air** Logical arguments are plausible, value of 0.98 from ESD without precise quotation. Remaining 0.02 are unclear (no emission to water, soil or waste) **Water** As the whole process is covered, including maintenance and cleaning, water emissions could take place. Hence, argumentation is not sufficiently clear and/or respective limitations of water contact are missing. **Soil** Deposition of volatile substances on soil is indeed unlikely; however this is not due to the process (as specified) but due to the nature of the substance **Waste** No RF and no justification
		Justification of RFs sufficient and can be followed?	
		Method of RF derivation described and understandable?	The RF to air is not sufficiently discussed with regard to the sameness of the operational conditions in the OECD ESD and the sub-spERC.
		Differentiation by properties plausible?	Not applicable Differentiation at the level of sub-spERCs
Narrative	No narrative	OCs simple & consistent with other sections?	Not applicable
		OC descriptions support understanding?	

Section	Relevant FS content	Assessment criteria	Assessment result
		Additional useful info on OCs provided?	

9.5.3 Risk management measures and their efficiencies

Table 46: SpERC CEPE professional indoor spraying – risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Professional users	RMM info consistent with "Obligatory onsite RMMs"?	Not applicable
Obligatory RMMs	No respective section	RMM info concise and understandable?	Not applicable
		Clear if RFs apply with or without RMMs?	
		Explicit if RMMs are not needed?	
		RMM efficiency provided?	
		RMMs fit to OCs, PCs and substances?	
		RMMs State-of-the-Art?	
		Information source on RMM provided?	
		Other observations	The "appropriate RMMs that may be used" include measures to water (wet scrubber or filtration), which is not logical as the RF is specified as zero (hence, no need). The same applies to the RMMs to soil. The justification for the lack of RMMs to air is that no RCR can be derived as there is no PNEC. This is not correct, as a PNEC could be derived if respective hazard data were available. Furthermore, the lack of the possibility to make a risk assessment does not justify that no measures are proposed if emissions of hazardous substances occur.
Narrative	No narrative	RMM info concise and understandable?	Not applicable
		RMM info supports the understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	

9.5.4 Days emitting

Table 47: SpERC CEPE professional indoor spraying - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	365	No confusion with working days of workers (e.g. 220); correspondence to average production days	Value conservative as no weekends are calculated for professional use

9.5.5 Appendix

Table 48: SpERC CEPE professional indoor spraying - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

10 SPERC ECMA 1.1A – CATALYSTS MANUFACTURE

10.1 General characterization of spERC

The FS ECMA 1.1a "Manufacture of Metal-containing catalysts" is available as revised version.

The applicability domain is described in detail with distinct metals for which the spERC is applicable.

The different processing types and processing steps as well as general processing conditions are provided.

The release factors to air and water are derived from an industry survey using measured data after on-site RMMs. There is no RF to waste but qualitative information on waste handling is given.

RMMs are provided with reference to specific techniques and efficiencies.

10.2 Candidates for best practice identified in the spERC

The ECMA factsheet includes a detailed and concrete description of the applicability domain. The title section limits the scope to distinct metals. The covered tasks are listed in the section "scope" and it is further specified that only operations where wastewater is discharged to an on-site treatment plant are covered.

The release factors are derived from reported emission data from catalyst manufacturers in various EU Member States between 2008 – 2010. They represent the 90th percentile of site-specific release factors from 19 sites.

10.3 Shortcomings identified in the spERC

- Background information is partly provided in non-appropriate sections (e.g. scope) thus making a structured reading of the spERC more difficult than necessary.
- It is not clear if the required RMM efficiency can be achieved by only one measure or if a combination is necessary. Only the RMM efficiencies reported in the survey are quoted but no clear statement is made on whether the RMM is obligatory.
- For the water RMMs it is not clear why the 50th percentile of the reported efficiencies (99%) is selected and not a different one, e.g. the 90th percentile, as implemented by Eurometaux.
- The industry survey underlying the spERC is not described in detail. The data collection and data processing methods, including how site-specific release factors were derived from the raw data are not documented. Therefore, a checking of plausibility is not possible.

10.4 Conclusions from screening

The ECMA factsheet covers a use with a comparatively narrow scope and the release factors are derived based on industry data. Shortcomings regard the presentation of information and the transparency of the justification.

10.5 Detailed assessment results

10.5.1 Applicability domain

Table 49: SpERC ECMA metal containing catalysts - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Manufacture of metal containing catalysts	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes
Scope	Covered substances, products and processes, data base for RF derivation	Description concise and simple?	Yes Information on RFs superfluous in this section
		Users, substances, products, processes specified or excluded?	Yes
		Cleaning and maintenance explicitly mentioned?	Yes
UDs	PROCs, SU and ERC	UDs reflect "Title" and "Scope"?	Consistent with coverage specified in former sections (manufacturing, formulating and transfer processes)[43]
OCs	Use location, conditions, emission pathways	OCs consistent with "Title" and "Scope"?	Yes
Narrative	List of process types	Domain narrated understandably?	Yes Doubles information in previous sections.
		Domain consistent with "Title" and "Scope"?	

10.5.2 Operational conditions and release factors

Table 50: SpERC ECMA metal containing catalysts - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Manufacture of catalysts	Title consistent with the OCs?	Yes
Scope	Processes	OCs worded as in "OC section"?	Yes
UDs	PROCs	PROCs reflect "OCs"?	Yes
OCs	Use location, conditions, emission pathways	OCs concise and understandable?	Yes
		OCs consistent with other sections?	Yes
		Influence of OCs on release explicit?	No
		OCs State-of-the-Art?	Unclear Not specific enough to judge
		Other observations	Emission pathways are specified in relation to the processing steps
Obligatory	Measures to	RMMs fit to main emission pathway(s)?	Yes

[43] There is a "PROC 0" as last item in the list of PROCs; such PROC is not contained in the ECHA guidance on use descriptors and can hence not be assigned.

Section	Relevant FS content	Assessment criteria	Assessment result
RMMs	air and water		
Release factors	Air, water, soil and waste based on industry survey data	Value plausible in relation to OCs?	Partly OCs and nature of process suggest low RFs; no quantitative checking possible.
		Justification of RFs sufficient and can be followed?	Unclear Background information on RF derivation is not publicly available.
		Method of RF derivation described and understandable?	Partly General method is described (measurements) but no details provided
		Differentiation by properties plausible?	Not applicable
		Other observations	RFs integrate all processing steps & RMMs
Narrative	List of process types	OCs understandable and consistent with other sections?	Narrative doubles information in prior sections
		OC descriptions support understanding?	
		Additional useful info on OCs provided?	

10.5.3 Risk management measures and their efficiencies

Table 51: SpERC ECMA metal containing catalysts - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Substances, products and processes, data base for RF derivation	Is RMM info consistent with "Obligatory RMMs"?	Yes
Obligatory RMMs	Detailed measures for water and air	RMM info concise and understandable?	Yes
		Clear if RFs apply with or without RMMs?	No Unclear which (combinations) of RMMs are required
		Explicit if RMMs are not needed?	Yes
		RMM efficiency provided?	Yes However, reported values in survey rather than required efficiencies for RFs
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes Based on survey;representativeness of installations cannot be checked
		Information source on RMM provided?	Yes
Narrative	List of process types	RMM info concise and understandable?	No RMM information provided
		RMM info supports the understanding?	
		Additional useful RMM information?	
		Additional info on waste management?	

10.5.4 Days emitting

Table 52: SpERC ECMA metal containing catalysts - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	280	No confusion with working days of workers (e.g. 220); correspondence to average production days	No justification (however likely to be also based on survey). As both intermittent and continuous releases are possible for the process, it could be useful to clarify if a different value applies to the two production situations.

10.5.5 Appendix

Table 53: SpERC ECMA metal containing catalysts - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

10.5.6 Scaling

In the scaling section the values of the “use rate”, the “emission days” and the “RFs” are listed as parameters for scaling. It should be considered whether scaling the release factors is consistent with the idea of spERCs as this would make the justification invalid. This is particularly true for the ECMA spERC, as the release factors integrate the entire process, including RMMs.

11 SPERC EFCC 5.1A.V1 - INDUSTRIAL USE OF CONSTRUCTION CHEMICALS

11.1 General characterization of spERC

The FS „Industrial use of volatile and non-volatile substances in construction chemicals“ covers three sub-spERCs, two of which regarding ERC 4 and one regarding ERC 5.

The applicability domain is described as wide range of purposes and application techniques for indoor use. The differentiation of substance domains (volatile and non-volatile substances as well as additives) is linked to the sub-spERC.

The operational conditions specify the use location and where the substances mainly end up (matrix, no water emissions).

Release factors are provided for all emission pathways, including waste, and are derived from the OECD ESD on paints and lacquers. They are all “zero” except the RF to air.

No RMMs are described as obligatory.

11.2 Candidates for best practice identified in the spERC

No aspects identified.

11.3 Shortcomings identified in the spERC

- It is not clear if cleaning and maintenance are covered.
- Some descriptions are confusing as two ERCs are specified in the same factsheet.
- From the scope it is not obvious that substances are included in a matrix during use, which is described so in the section on OCs.
- The OCs are very generically described.
- The broad scope contrasts with the low release factor to air and the "zero emission" stated for water, soil and waste, which are derived from the OECD ESD for paints and varnishes.
- The source of the release factors cannot be traced due to imprecise ESD quotations and no specific justification is provided in how far the processes of paint and varnish application should cover all industrial uses of construction chemicals.
- The spERC specifies that no RMMs are necessary due to low air emissions and the lack of water contact during the processing. Due to the broad scope it cannot be checked if none of the uses requires RMMs or if RFs of „zero" to water are possible without on-site RMMs.
- The narrative section mainly spells out the PROCs listed in the use descriptor section of the factsheet. This is an unnecessary doubling of information. No additional information is provided on OCs or RMMs.
- The appendix contains several pieces of information which are not included in the factsheet, such as that efficient raw material use is assumed or that the process is solvent-based. The coverage of outdoor use contradicts the factsheet content (only indoor use).

11.4 Conclusions from screening

The scope of the spERC is very broad and general. It is unclear to which product types and processes the spERC refers, in particular as the list of PROCs includes many different processes. The spERC is not plausible as the low release factors cannot be checked and the justification given is not regarded sufficiently detailed and thorough. Further confusion is added due to the coverage of three sub-spERCs specifying 2 ERCs in one factsheet but with partly differing OCs.

11.5 Detailed assessment results

11.5.1 Applicability domain

Table 54: SpERC EFCC Industrial use of non-volatiles in CC - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of non-volatile substances in CC	"Title" unambiguous?	Yes But "non-volatile" not defined.
		"Title consistent with "Scope"?	Yes But "significant evaporation" not defined

Section	Relevant FS content	Assessment criteria	Assessment result
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Partly "non-volatile substances" should rather be part of the applicability domain than the title.
Scope	Wide range of purposes and application techniques, indoor use, no evaporation	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Partly Exclusion of volatile substances from substance domain. (Volatiles are included in the other sub-spERCs of the FS).
		Cleaning and maintenance explicitly mentioned?	No
UDs	SU, ERC, PROC, PC	UDs reflect "Title" and "Scope"?	Mostly Polishes and waxes (PC 31) are not listed. PC 0 (others) is listed without further explanation.
OCs	Indoor, no water contact, sub-stance included in matrix	OCs consistent with "Title" and "Scope"?	Yes However, due to the broad scope, including e.g. the use of paints, it is not obvious that no water contact occurs.
Narrative	Explanation of different processes covered	Domain narrated understandably	Yes
		Domain consistent with "Title" and "Scope"?	Partly From the title and scope section it is not clear that formulation of CCs is covered by the spERC.

11.5.2 Operational conditions and release factors

Table 55: SpERC EFCC Industrial use of non-volatiles in CC - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial, non-volatiles	Title consistent with OCs?	Yes
Scope	Wide range of purposes and application techniques, indoor use, no evaporation	OCs worded as in "OC section"?	Partly "Indoor use" is the same in both sections, "no evaporation" is mentioned in the scope, whereas no water contact is specified in the section on OCs (also due to different ERCs being specified).
UDs	PROC	PROCs reflect "OCs"?	Yes
OCs	Indoor, no water contact, background: substance included in matrix	OCs concise and understandable?	Partly Concise and understandable but not really specifying OCs (any condition is possible). It is unclear why water contact is excluded.
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	No
		OCs State-of-the-Art?	Cannot be judged OCs are too general
		Other observations	Inclusion in matrix is only mentioned in the back-ground info of the OCs but should be in the main section or the scope, as this is relevant for the release
Obligatory RMMs	No on-site RMM	RMMs fit to main emission pathway(s)?	Unclear This cannot be judged as the non-relevance is not adequately described. If the assumption that no release to air and water occurs, this is OK.
Release factors	Air, water, soil, waste; based on OECD ESD	Value plausible in relation to OCs?	Partly Low air emission is plausible due to non-volatiles. As spraying (aerosol formation) and any use conditions (including high temperatures) are covered, there may be higher emissions to air.

Section	Relevant FS content	Assessment criteria	Assessment result
		Justification of RFs sufficient and can be followed?	No The low RF value for air[44] and the "zero emission" for other pathways are quoted from the OECD ESD on paints and varnishes with general argumentation that use conditions are similar. This is not sufficient with view to the different processes covered and the different types of CCs; it is further unclear from which process the „zero" is derived, as in the OECD ESD several application techniques and products are covered, some of which with significant release to water and waste.
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable Properties belong to applicability of the spERCs
Narrative	Explanation of different processes covered	OCs simple & with other sections?	Yes
		OC descriptions support understanding?	No No additional information, as narrative only spells out PROCs
		Additional useful info on OCs provided?	

11.5.3 Risk management measures and their efficiencies

Table 56: SpERC EFCC Industrial use of non-volatiles in CC – risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Indoor use, no evaporation	RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	No on-site RMM	RMM info concise and understandable?	Not applicable
		Clear if RFs apply with or without RMMs?	
		Explicit if RMMs are not needed?	
		RMM efficiency provided?	
		RMMs fit to OCs, PCs and substances?	
		RMMs State-of-the-Art?	
		Information source on RMM provided?	
Narrative	Explanation of different processes covered	RMM info concise and understandable?	Not applicable Narrative only contains information o processes
		RMM info supports the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	

11.5.4 Days emitting

Table 57: SpERC EFCC Industrial use of non-volatiles in CC - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220	No confusion with working days of workers (e.g. 220); correspondence to average production days	No justification, unclear if confused with working days

[44] In the overall flow-scheme (OECD ESD, Figure 1.1, p. 115) of coatings application by spraying, solids are lost with 1% to air and 4% to waste. The value of 1.7% loss to air stems from a table on coating rail vehicles; it is unclear how this is connected to construction chemicals and their use.

11.5.5 Appendix

Table 58: SpERC EFCC Industrial use of non-volatiles in CC - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Solvent based, equipment cleaning and solvent disposal as waste, indoor and outdoor use, trained staff, spill protection and waste reuse, efficient use of raw materials	Information corresponds to factsheet	All information in the appendix is not explicitly contained in the FS. Outdoor use is not included in the FS but possible according to the appendix (could result in releases to soil → conflict with RFs); typical measure to reduce waste water emissions specified with "closed batch systems" does not fit to PROCs.

12 SPERC EFCC 8F.1.A.V1 – WIDE DISPERSIVE USE OF CONSTRUCTION CHEMICALS

12.1 General characterization of spERC

The factsheet by EFCC „Wide dispersive Use of Substances in Professional and DIY construction chemicals" covers 4 sub-spERCs which differ in the substances (volatiles / non-volatiles) and the use location (indoor / outdoor). Here, spERC 8f – non-volatile substances in outdoor use – is assessed.

The applicability domain is defined by flow text with examples of processing techniques. The differentiation of substance domains (volatile and non-volatile substances) and use location (indoor and outdoor) is linked to the sub-spERC.

The operational conditions repeat the location of use and specify where substances mainly end up (air, matrix).

Release factors exist for all 4 emission pathways with those to soil and waste provided as "zero". The justification stems from the OECD ESD on paints, lacquers and varnishes.

No RMMs are defined as obligatory.

12.2 Candidates for best practice identified in the spERC

No aspects identified.

12.3 Shortcomings identified in the spERC

- It is not clear whether or not cleaning and maintenance is covered.
- Some use descriptors do not fit to the applicability domain.
- The broad scope contrasts with the low release factors; higher emissions to all compartments are assumed for consumer use.

- The spERC does not include any information on RMMs, which is due to the types of users; however, general advice on emission minimisation would be useful, in particular for professional users.
- The origin of the RFs cannot be traced in the OECD EDS.
- Justification for the release factors to air, soil and waste of "zero" would be useful, in addition to or instead of the reference to the OECD ESD[45]
- The use of (decorative) paints and coatings is only one part of the application of construction chemicals. A justification and explanation why the use of the ESD values is appropriate for all other potential uses / product categories is not provided, apart from the statement that "the use of adhesives and sealants" (more PCs are covered by the spERC) is very similar to that of paints.
- In the appendix the process efficiency is specified as "efficient use of raw materials", with a typical exemplary measure of a "closed process". This is not appropriate for professional and consumer uses.

12.4 Conclusions from screening

The spERC coverage is very broad and the derivation of RFs, based on the OECD ESD of another sector is not plausible and not sufficiently justified. The RFs are comparatively low for several emission pathways, which can be questioned for outdoor professional and consumer uses.

12.5 Detailed assessment results

12.5.1 Applicability domain

Table 59: SpERC EFCC wdu of CC- applicability domain

Section	FS content	Assessment criteria	Assessment result
Title of spERC	Wdu of substances in professional and DIY construction chemicals	"Title" unambiguous?	Yes However, scope is very broad and it may be unclear which chemicals are construction chemicals
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes For all sub-spERCs
		Title in line with ENES short titles?	Yes
Scope	Process examples, substance domain	Description concise and simple?	Partly First sentence doubles title, substance domain doubles spERC codes
		Users, substances, products, processes specified or excluded?	Yes
		Cleaning and maintenance explicitly mentioned?	No
UDs	SU, ERC, PROC, PC	UDs reflect "Title" and "Scope"?	Mostly Unclear why polishes and waxes (PC 31) are not listed. PC10 (Building and construction preparations not covered elsewhere) is not included in the current

[45] In the OECD ESD for spray applications (e.g. furniture), release factors exceeding "zero" exist.

Section	FS content	Assessment criteria	Assessment result
			ECHA guidance.
OCs	Use location, users, matrix, air emission	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Explanation of CC, typical processes, market shares	Domain narrated understandably?	Yes
		Domain consistent with "Title" and "Scope"?	Yes

12.5.2 Operational conditions and release factors

Table 60: SpERC EFCC wdu of CC - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Wdu, DIY & professional	Title consistent with OCs?	Yes
Scope	Process examples	OCs worded as in "OC section"?	Yes
UDs	PROC	PROCs reflect "OCs"?	PROC 8b addresses synthesis and formulation; this is not appropriate for professional users. All other spERCs are consistent with the title section and scope
OCs	Use locations, user group, emission to air or embedding in matrix	OCs concise and understandable?	Yes / No Conditions are concise but not very conclusive on the types of processes covered and how they are operated.
		OCs consistent with other sections?	Yes Mostly doubling spERC code; inclusion in matrix only new information
		Influence of OCs on release explicit?	Yes Influence is pre-condition to application of spERC
		OCs State-of-the-Art?	Not applicable
Obligatory RMMs	Limited / no technical emission control	RMMs fit to main emission pathway(s)?	Not applicable
Release factors	Air, water, soil, waste; based on OECD ESD	Value plausible in relation to specified OCs?	Partly c.f. below
		Justification of RFs sufficient / can be followed?	**RF air:** No justification regarding losses of non-volatiles to air (e.g. spray application leads to aerosol formation, where solids are contained which may either remain in the air or (more likely) deposit (e.g. to soil). **RF water:** OECD ESD; application of paints and coatings specifies losses to water for consumers (0.015) and for professional users ("zero"). No other coating application can be related to constructions chemicals. **RF soil:** Consistent with OECD ESD; however for wdu including outdoor spraying and use by consumers, justification for lack of soil emissions is regarded necessary. **RF waste:** The OECD ESD specifies 25% to waste for consumers and 1-3% for professional users (remnants in cans)
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable
Narrative	Explanation of CCs, typical processes	OCs simple and consistent with other sections?	Yes
		OC descriptions support understanding?	Yes
		Additional useful info on OCs provided?	Yes List of processes and products

12.5.3 Risk management measures and their efficiencies

Table 61: SpERC EFCC wdu of CC – risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Processes, substance domain	RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	Limited or no technical control of emission	RMM info concise and understandable?	No
		Clear if RFs apply with or without RMMs?	Yes As efficiency is stated as „zero"
		Explicit if RMMs are not needed?	No It is unclear what the term "limited technical control" of emissions means. As an efficiency of "zero" is provided, is seems sufficient to state that no RMMs are required (and are hence not considered in the release factors).
		RMM efficiency provided?	Yes
		RMMs fit to OCs, PCs and substances?	Not applicable
		RMMs State-of-the-Art?	Not applicable
		Information source on RMM provided?	No
Narrative	Typical processes	RMM info concise and understandable?	Not applicable
		RMM info support the understanding?	
		Additional useful RMM info given?	
		Additional info on waste management?	

12.5.4 Days emitting

Table 62: SpERC EFCC wdu of CC - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	365	No confusion with working days of workers (e.g. 220); correspondence to average production days	OK

12.5.5 Appendix

Table 63: SpERC EFCC wdu of CC - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Type of process, outdoor use, equipment cleaning, process efficiency	Information corresponds to factsheet	The type of process is consistent. The determinant "equipment cleaning" clarifies that this activity is covered by the spERC. This is not mentioned earlier in the spERC. The determinant "process efficiency" is not consistent with the title and scope: a) professional and consumer uses are not regarded a "process"; this is obvious from the value description, which refers to closed batch system and emission reduction to wastewater b) whether or not consumer and professional users use raw materials efficiently depends on their individual behaviour.

13 SPERC ESIG/ESVOC 7.13A – FUNCTIONAL FLUIDS INDUSTRIAL

13.1 General characterization of spERC

The FS ESIG/ESVOC 7.13a "Functional Fluids (Industrial): solvent – borne" is available as revised version and does not contain sub-spERCs.

The applicability domain is characterized by examples of functional fluids and limitations regarding the substance domain, the installation size and the processing conditions.

The operational conditions are specified by use location and the process type being solvent-based.

Release factors are provided to air, water and soil, the former two being differentiated according to substance properties. The justification is based on the EU TGD and the OECD ESD on lubricants. No RF to waste is defined.

Obligatory RMM technologies are mentioned for the water pathway, however without efficiencies. Additional measures are described for air and water including type of treatment and assumed efficiency.

13.2 Candidates for best practice identified in the spERC

No particular aspect identified.

13.3 Shortcomings identified in the spERC

- The applicability domain of the spERC is not clear because it is not defined what the actual use is. The title only contains the word "industrial", the scope lists the product types but no processes involved and the narrative specifies that activities "[…] such as billing and draining of cable and transfer oils […]" are covered.
- The OCs do not provide further information that would indicate what actual processes are involved in the „use".
- The OCs are rather general and do not allow plausibility checking of the RFs.
- The OC "outdoor use" contradicts the PROCs and information in other sections that the process is closed.
- RMMs in the section "obligatory RMMs" are not provided with necessary efficiencies. Is not clear if they are obligatory because the text states that they "may be required".
- The RFs to air and to soil are based on the A-tables of the EU TGD of the polymers industry. Although the values are stated to be conservative, the TGD is not an accepted information source for RFs.

13.4 Conclusions from screening

It is unclear which processes / use is actually covered by the spERC as there is contradictory information in the sections scope, UDs and OCs. OCs are only generically described, the information on RMMs is ambiguous and the RFs are insufficiently justified.

13.5 Detailed assessment results

13.5.1 Applicability domain

Table 64: SpERC ESIG/ESVOC functional fluids - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Functional Fluids (industrial): solvent-borne	"Title" unambiguous?	No Unclear what functional fluids are and if "(industrial") addresses the lifecycle stage of industrial use of the functional fluid in a process or if it addresses the removal of used functional fluids and waste disposal (c.f. narrative)
		"Title consistent with "Scope"?	Yes
		SpERC correspond to ERC?	Yes
		Title in line with ENES short titles?	No Wrong sequence, lifecycle stage not spelled out
Scope	Example of functional fluids, substance domain, installation size, dry process	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Yes Specification of substances and products, process
		Cleaning and maintenance explicitly mentioned?	Yes Maintenance; no explicit mentioning of cleaning
UDs	PROCs	UDs reflect "Title" and "Scope"?	Yes
OCs	Location of use, solvent based	OCs consistent with "Title" and "Scope"?	No Outdoor use inconsistent with RFs
Narrative	Examples of processes, emission reduction	Domain narrated understandably?	No Unclear what the use actually comprises
		Domain consistent with "Title" and "Scope"?	

13.5.2 Operational conditions and release factors

Table 65: SpERC ESIG/ESVOC functional fluids - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Functional Fluids (industrial): solvent-borne	Title consistent with OCs?	Unclear Not defined what is meant with "(industrial)"; OCs are very generally described
Scope	Installation size, dry process	OCs worded as in "OC section"?	No OCs are very general, section "Scope" contains more detail but fails to clarify what is the actual use.
UDs	PROCs	PROCs reflect	Unclear

Section	Relevant FS content	Assessment criteria	Assessment result
		"OCs"?	Not possible to judge as the "use" is no clearly defined.
OCs	Location of use, solvent based	OCs concise & understandable?	No Unclear what is "the process"; outdoor use contradicts closed processing
		OCs consistent with other sections?	
		Influence of OCs on release explicit?	Partly The release pathway to water is not clear, release to air via evaporation is described.
		OCs State-of-the-Art?	Unclear OCs only with generic conditions
Obligatory RMMs	No sub-stance in WW; RMM may be required	RMMs fit to main emission pathway(s)?	Unclear The types of processes are not clear; process is specified as "dry"; hence no water RMMs should be necessary. Same wording as in FS on lubricants.
Release factors	Air (by vapour pressure), water (by solubility) soil, no RF to waste. Justification based on EU TGD and OECD ESD	Value plausible in relation to OCs?	Not clear Use not defined sufficiently.
		Justification of RFs sufficient and can be followed?	No **RF to air and RF to soil** Values from TGD A/B-Tables not accepted information source; in addition it is unclear, if they apply with or without RMMs; this is not discussed in the justification. It is unclear why the values are quoted if negligible emissions are assumed (qualitative argumentation for RF = 0 could be applied). The OECD ESD specifies uses of lubricants as hydraulic fluids and metal processing fluids. The RFs (of the entire products, not the component substances) to air range from zero to 5%; this is higher than the most of the RFs specified in the spERC. If and which CoU are assumed in the ESD is not specified and hence the data cannot be related to the spERC. **RF to water** The assumed worst case of the generation of 1m³ wastewater per tonne substance includes an extrapolation from a lubricant blending to a lubricant using plant. This cannot be related to the use of functional fluids. The factor of 10 is not justified; hence it cannot be judged if this represents the worst case in all mentioned applications.[46] The calculation based on the OECD method and the physical chemical properties are reasonable and can be followed. However, there is no justification provided why the lubricant substances cannot be present in wastewater as non-dissolved liquid. The RFs for the use of lubricants in hydraulic fluids and as metal working fluids include release factors ranging from 0.3 to 7%. This is more than a factor 10 higher than the values provided in the spERC; however metal working fluids are not covered. Nevertheless, respective explanation is missing. No **RF to waste** is provided.
		Method of RF derivation described and understandable?	No Literature values partly modified; not fully understandable and reference not easy to follow.
		Differentiation by properties plausible	Yes
		Other observations	Same justification as for spERC on use of lubricants
Narrative	Examples of processes	OCs simple & consistent with other sections?	No Unclear which processes are covered, as here billing and draining is mentioned as well as waste disposal.
		OC descriptions support	

[46] As the scope specifies that only dry processes are covered, this is very likely; however, justification is missing.

Section	Relevant FS content	Assessment criteria	Assessment result
		understanding?	
		Additional useful info on OCs provided?	No

13.5.3 Risk management measures and their efficiencies

Table 66: SpERC ESIG/ESVOC functional fluids - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	Installation size, dry process	RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	Assumption that no substance is in WW; removal technology may be required	RMM info concise and understandable?	No
		Is it clear if RFs apply with or without RMMs?	No Appears no RMMs are included in RFs but not fully clear
		Explicit if RMMs are not needed?	No
		RMM efficiency provided?	No
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes Examples given as "may be required"
		Information source on RMM provided?	No
		Additional observations	In the section on "appropriate RMMs that may be used", several measures to air are listed with efficiency ranges. Information is derived from the CEFIC RMM-library and the IPPC BREF. Also information on the degree of vapour recovery is provided for waste air. On-site measure for water emissions are specified and minimum removal efficiencies are given for distillation.
Narrative	No specific RMM information	RMM info Concise and understandable?	Not applicable
		RMM info supports the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	Not applicable

13.5.4 Days emitting

Table 67: SpERC ESIG/ESVOC functional fluids - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	20 days / year	No confusion with working days of workers (e.g. 220); correspondence to average production days	OK

13.5.5 Appendix

Table 68: SpERC ESIG/ESVOC functional fluids - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Indoor and outdoor, RMM to air and water	Information in Appendix corresponds to information in factsheet	In the factsheet no obligatory RMMs are listed

14 SPERC ESIG/ESVOC 4.6A – LUBRICANTS INDUSTRIAL

14.1 General characterization of spERC

The FS ESIG/ESVOC 4.6: "Lubricants (industrial): solvent-borne" has no sub-spERCs and is available in a revised version[47].

The applicability domain is characterized by a list of processing steps and information on the degree of containment. Furthermore, limitations regarding the substance domain, the installation size and the processing conditions are described.

The operational conditions are generically described specifying the location of use, that the process is solvent based and describes the processing efficiency as well as information on the necessity of emission controls to air.

The release factors to air are differentiated according to vapour pressure and justified with information in the EU TGD. The RFs to water are differentiated by water solubility and justified with information from the OECD ESD on lubricants. The RF to soil is justified with information in the EU TGD. No RF to waste is defined.

Obligatory RMM technologies are mentioned for the water pathway, however without efficiencies. Additional measures are described for air and water including type of treatment and assumed efficiency.

14.2 Candidates for best practice identified in the spERC

No particular aspect identified.

14.3 Shortcomings identified in the spERC

- The description of the spERC's coverage is not fully consistent. In particular the narrative description, which should explain the coverage in easy words, is contradictory to the other information.

[47] The version number was not updated; it is still v1.

- The sections operational conditions and RMMs are neither sufficiently complete for the spERC users to apply the spERC and communicate accordingly (RMMs unclear) nor for the authorities to check if the assumptions and spERC values are reasonable.
- Although the row title is called “obligatory RMMs” it is unclear if and if yes, which measures are to be implemented so that the RFs can be applied.
- With regard to the release factors, justification on why the values of the TGD A/B-tables of the mineral oil and fuel industry are applicable and justification of worst case assumptions as well as a discussion on the sameness of operational conditions in the spERC and the literature as well as the existence / integration of RMMs in these factors are missing.

14.4 Conclusions from screening

The spERC is highly relevant as many industry sectors apply lubricants; it has a broad scope and differentiated release factors which are not sufficiently justified.

14.5 Detailed assessment results

14.5.1 Applicability domain

Table 69: SpERC ESIG/ESVOC 4.6 - Lubricants (industrial): solvent-borne - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Lubricants (industrial): solvent borne	“Title” unambiguous?	Yes
		“Title consistent with “Scope”?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes Sequence could be changed to industrial use of lubricants (solvent-borne)
Scope	Specification of product, containment, substances covered, installation size and water contact; examples of processes	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Yes Process examples, substances specified, processing conditions defined as dry
		Cleaning and maintenance explicitly mentioned?	It is unclear if the term “equipment maintenance” includes cleaning activities.
		Other observations	The average installation size is defined but the spERC should be applicable to any installation size (value can be scaled). It is unclear if the size determines certain OCs, which are not expected in smaller installations.
UDs	PROCs	UDs reflect “Title” and “Scope”?	Yes There are some PROCs, such as “industrial spraying” or “treatment of articles by dipping and pouring”, where it is not obvious how and why a lubricant is used.
OCs	Indoor, solvent based processes, efficient raw material use, air	OCs consistent with “Title” and “Scope”?	Yes

Section	Relevant FS content	Assessment criteria	Assessment result
	emission controls		
Narrative	Wide range of processes, RMMs for workplace and loss minimization, water emissions through cleaning not applicable	Domain narrated understandably?	Yes Description is quite generic.
		Domain consistent with "Title" and "Scope"?	Yes

14.5.2 Operational conditions and release factors

Table 70: SpERC ESIG/ESVOC 4.6 - Lubricants (industrial): solvent-borne - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Lubricants (industrial): solvent borne	Title consistent with OCs?	Yes
Scope	Containment, installation size, water contact; examples of processes	OCs worded as in "OC section"?	Yes
UDs	PROCs	PROCs reflect "OCs"?	Yes There are some PROCs, such as "industrial spraying" or "treatment of articles by dipping and pouring", where it is not obvious how in how far they are "dry" as specified in the scope.
OCs	Indoor, solvent based processes, efficient raw material use, air emission controls	OCs concise and understandable?	Yes
		OCs consistent with other sections?	Yes
		Influence of OCs on release explicit?	Partly The terms "efficient" and "little" are undefined and hence do not clarify which processes are covered or which share is emitted. No quantitative relation.
		OCs State-of-the-Art?	Cannot be judged OCs are too generally described
Obligatory RMMs	No substance in WW; RMM may be required	RMMs fit to main emission pathway(s)?	No No obligatory RMMs for air, although emission control mentioned before; same wording as in FS for functional fluids
Release factors	Air (according to vapour pressure), Water (according to solubility) and soil	Value plausible in relation to the OCs?	Not clear
		Justification of RFs sufficient and can be followed?	No **RF to air and RF to soil** For all information in the TGD A/B-Tables it is unclear, if they apply with or without RMMs; this is not discussed in the justification. The TGD is not an accepted information source for RFs. The OECD ESD specifies uses of lubricants as hydraulic fluids and metal processing fluids. The release factors (of the entire lubricant, not the component substances) to air range from zero to 5%; this is higher than the most of the release factors specified in the spERC. If and which RMMs are assumed in the ESD is not specified and hence the data cannot be related to the spERC. The oil concentration in off-air is not a useful information, because it cannot be compared to a release factor relating to the overall use amount at a site.

Section	Relevant FS content	Assessment criteria	Assessment result
			RF to water The assumed worst case of the generation of 1m³ wastewater/tonne substance includes an extrapolation from a lubricant blending to a lubricant using plant. The factor of 10 is not justified; hence it cannot be judged if this represents the worst case in all mentioned applications.[48] The calculation based on the OECD method and the physical chemical properties are reasonable and can be followed. However, there is no justification provided why the lubricant substances cannot be present in wastewater as non-dissolved liquid. The release factors for the use of lubricants in hydraulic fluids and as metal working fluids include release factors ranging from 0.3 to 7%. This is more than a factor 10 higher than the values provided in the spERC. No **RF to waste** is provided
		Method of RF derivation described and understandable?	No Literature values partly modified; not fully understandable and reference not easy to follow.
		Differentiation by properties plausible?	Yes
Narrative	Wide range of closed/covered processes, measures to minimize loss, water emissions through cleaning not applicable	OCs simple & consistent with other sections?	Yes
		OC descriptions support understanding?	Yes
		Additional useful info on OCs provided?	No

14.5.3 Risk management measures and their efficiencies

Table 71: SpERC ESIG/ESVOC 4.6 - Lubricants (industrial): solvent-borne - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	No RMM info	Is RMM info consistent with "Obligatory onsite RMMs"?	Not applicable
Obligatory RMMs	Assumption that no substance is in WW; removal technology may be required	RMM info concise and understandable?	No The assumption that no free "product" (undefined term!) is an assumption which should be separated from the core spERC information. Although air emission controls are mentioned as relevant before, they are not included in this section.
		Clear if RFs apply with or without RMMs?	No There is no clear statement on if RMMs are required (integrated in the spERC and release factors) or not and which measures are possible.
		it made explicit if RMMs are not needed?	No
		RMM efficiency provided?	No Efficiencies are provided for the RMMs listed in the section

[48] As the scope specifies that only dry processes are covered, this is very likely; however, justification is missing.

Section	Relevant FS content	Assessment criteria	Assessment result
			"Appropriate RMM that may be used"
		RMMs fit to OCs, PCs and substances?	No RMMs to air are not included
		RMMs State-of-the-Art?	Yes Examples of RMMs are state-of-the-art
		Information source on RMM provided?	No
		Additional observations	In the section on "appropriate RMMs that may be used" air filtration and particle removal is listed with efficiency ranges. Information is derived from the CEFIC RMM-library and the IPPC BREF. On-site biological WWT is provided for water emissions.
Narrative	Wide range of closed/covered processes, with RMMs for workplace exposure and loss minimization, water emissions through cleaning not applicable	RMM info concise and understandable?	No Confusing as information is not specific and unclear if RMMs are obligatory or not
		RMM info supports the understanding?	No Confusing as partial contradiction to section "obligatory RMM"
		Additional useful RMM information given?	No
		Additional info on waste management?	The information on RMMs to maintain workplace exposure limits are not relevant for the environment (except that a high degree of emission capturing is implemented), as no information on the actual final treatment is provided. If "no discharges" occur, then all release factors should be "zero". The last sentence is ambiguous; either cleaning operations are not covered by the spERC or no equipment cleaning involving water use takes place.

14.5.4 Days emitting

Table 72: SpERC ESIG/ESVOC 4.6 - Lubricants (industrial): solvent-borne - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	20 d/y	No confusion with working days of workers (e.g. 220); correspondence to average production days	Unclear if applicable to all of the various applications

14.5.5 Appendix

Table 73: SpERC ESIG/ESVOC 4.6 - Lubricants (industrial): solvent-borne - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Use location, efficiency, on-site water and air treatment with effectiveness	Information in Appendix corresponds to information in factsheet	The spERC determinants do not include the full information on the process. The process efficiency is described with an undefined term (efficient use) The information on the on-site treatment of wastewater and off-air is not consistent with the respective section on obligatory RMMs (but with the additional ones). The appendix contains efficiency values for obligatory RMMs, which are not included in the FS.

15 SPERC ETRMA 3/6D – RUBBER PROCESSING

15.1 General characterization of spERC

The FS ETRMA spERC 3/6d.1v1 "Formulation and industrial use of materials resulting in inclusion on a matrix (ERC 3) in the general rubber good and tyre industries" was first published in August 2010 and has not been revised since then. It covers the ERCs 3 (formulation in materials) and 6d (industrial use of process regulators for polymerisation processes in production of resins, rubbers and polymers).

The spERC is separated into three sub-spERCs which are differentiated by

- the scale of production (≤ 100 t/y and > 100 t/y) and
- existence of pre-treatment for the small scale installations

The applicability domain is specified according to covered processes and substance functions (TGD use classification) and described as flow –text.

The installation size and the existence of pre-treatment are mentioned as operational conditions. The installation size is qualified by the substance use amount per year and a formula is provided to calculate it.

The release factors to air are derived from the A-tables of the TGD and differentiated according to substance properties. The RFs to water are derived from an industry survey and do not differentiate according to substance properties. RFs to soil and waste are missing.

Risk management measures are not specified in the factsheet but reference is made to ETRMA's generic exposure scenarios.

Information on the derivation of RFs is provided in a separate background document. Information on RMMs is contained in the Generic Exposure Scenarios (GES) for tyre and general rubber goods production as well as a spERC spreadsheet and related guidance available on the ETRMA website.

15.2 Candidates for best practice identified in the spERC

The ETRMA spERC is a good example of how to derive RFs from data collected in an industry survey, as the information basis is thoroughly described, the methodology to derive the RFs is transparently documented and additional considerations, such as an uncertainty analysis and a discussion of the detection limits is performed[49].

The information is separated from the FS so that it not overloaded with information.

[49] However, in the background documentation information on the OCs and RMMs are almost completely missing.

The main exposure determining factors are identified as installation size and existence of wastewater pre-treatment. Therefore, these parameters are used as differentiators for the 3 sub-spERCs.

The ETRMA spERC also has a good description of coverage, including the naming of covered processes and a specific applicability domain. Also the type of RMMs is provided at high level of detail by reference to the Generic Exposure Scenarios (GES).

15.3 Shortcomings identified in the spERC

- Formulation (ERC 3) and use (ERC 6d) are covered in one spERC; hence, installations carrying out only one of the processes cannot decide which OCs, RMMs and RFs apply to them. The sections „Title", „Coverage" and „Scope[50]" are inconsistent in this regard.
- No operational conditions relevant for the environment are described in the FS or the background documentation. Although the only relevant exposure determinants are stated to be the installation size and the existence of pre-treatment, the actual OCs should be specified so that evaluators and spERC users / ES receivers can decide if their way of processing is covered.
- It is not fully clear which RMMs are obligatory and precondition for using the RFs / the spERC
- There are no efficiency values provided for the RMMs; however the GES refers to the CEFIC RMM library where values are included for some of the measures
- The emission factors to air are not sufficiently justified because
    - the original source are the A-tables of the TGD, which is not regarded as an acceptable source[51] and
    - no discussion of links between the OCs and RMMs in the literature source and the spERC factsheet is provided.
- Release factors for soil and waste are missing without justification.
- The RFs to water for the various additive types are derived from data of three substances which belong only to two additive types (vulcanizing agents and anti-aging agent). The lowest water solubility of the three substances is 0.32 mg/l. Justification for extrapolating the RFs to other additive types or to substances with a lower waster solubility is not provided.
- The narrative contains different types of information regarding the processes and the justification of the release factors
- The calculation of M_{spERC} is based on total rubber production values in specific years; hence it is not dynamic and may be outdated
- The emission days in the spERC are lower than those identified in the survey.

[50] The section scope does not have a title in the factsheet

[51] It is stated that industry reported air emission factors for ZnO in the scope of the EU RAR which are of the same size; however this is only one data source supporting that the A-tables are correct

15.4 Conclusions from screening

The ETRMA spERC is not fully consistent due to the coverage of two ERCs and the different wording / reference to ERCs in some of the FS sections. Consistency cannot be assessed regarding the description of operational conditions, as these are not specified in terms of parameters qualifying how a process is conducted which is relevant to the environmental release.

The spERC and underlying documentation are understandable in general; however as specifications on the operational conditions are missing, it is hardly possible for downstream users to check, whether or not they are covered or not.

The RF derivation for the water pathway can be regarded as best practice and could be subject to further assessment regarding the justification of extrapolating them to all additive types addressed in the factsheet.

15.5 Detailed assessment results

The ETRMA factsheet does not specify any operational conditions with the exception that in the narrative it is stated that formulation and use in rubber industry are dry processes. Therefore, the assessment of several aspects is not possible in the way foreseen by the criteria and report format.

15.5.1 Applicability domain

Table 74: SpERC ETRMA 3 and 6d - applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Formulation and industrial use of materials resulting in inclusion on a matrix	"Title" unambiguous?	No Not specific for the sector; long title includes specification of rubber and tyre industry
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Partly Only ERC 3 is mentioned in the FS; ERC 6 is mentioned in the background document and the overall title of the FS
		Title in line with ENES short titles?	No 2nd identifier on market sector information missing
Scope Section has no title in ETRMA FS	Narrative: processes and substance functions	Description concise and simple?	Yes
		Users, substances, products, processes specified or excluded?	Yes TGD codes of substance functions include more specific ones than substance functions in the R12 use descriptor guidance.
		Cleaning and maintenance explicitly mentioned?	Unclear Not listed in coverage
		Additional observation	Under "spERC Code", three sub-spERCs are defined by process efficiency and use of pre-treatment. The section OCs specifies how M_{spERC} is calculated.
UDs	PROCs	UDs reflect "Title" and "Scope"?	Yes
OCs	Formula for Msperc for sub-spERC identification	OCs consistent with "Title" and "Scope"?	No No OCs specified; spERC code addresses use scale, not efficiency; coverage describes processing types, not optimization techniques in raw materials handling Further assessment of formula c.f. Section 15.5.4
Narrative	Coverage,	Domain narrated	No;

Section	Relevant FS content	Assessment criteria	Assessment result
	processing efficiency, emission pathways, justification	understandably?	Information partly repeated, several aspects addressed
		Domain consistent with "Title" and "Scope"?	Yes
		Additional observation	The narrative mentions that processes are dry (OC not mentioned before) and that emissions to water could occur during equipment washing and blowdown during formulation (coverage of cleaning and maintenance); this should be mentioned already in the coverage section.

15.5.2 Operational conditions and release factors

In the following table in many cases, where OCs are addressed, two assessment results are specified because within the logics of ETRMA (where the OCs are the installation size and the existence of pre-treatment) the relations are consistent and plausible. However, according to the understanding of OCs (qualification of how a process is carried out), no OCs are provided and hence they cannot be assessed.

Table 75: SpERC ETRMA 3 and 6d - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Formulation and industrial use; inclusion on a matrix	Title consistent with the OCs?	Yes / No Yes: no contradiction, because different type of information No: not consistent as no OCs re described
Scope no title in FS	Processes and substance functions	OCs worded as in "Operational conditions?	No List of processes and substance functions → different type of content than OC.
UDs	PROCs	PROCs reflect "OCs"?	Yes / No UDs reflect narrative in section "Scope"; Section OCs does not contain information on processes
OCs	Formula for M_{sperc}; needed for sub-spERC identification	OCs concise and understandable?	No Formula and abbreviation "phr" not understandable to non-experts No information on the process and its OCs Further aspects on the calculation of M_{spERC} c.f. Section 15.5.4
		OCs consistent with other sections?	Yes / No No contradiction but also no information on the process and its OCs
		Influence of OCs on release made explicit?	Yes / No Yes, because the specified OCs are clearly related to the information on installation sizes in the background document (survey data) for the RFs to water. No, because no relation exists for the RFs to air at all and no OCs in the common understanding are provided
		OCs State-of-the-Art?	No / Yes The operational conditions are not specified; however as the information is based on a survey it can be assumed that the RFs are derived based on State-of-the-Art OCs.
		Other observations	Assumptions on the representativeness of surveyed installations are provided; no intra-facility uncertainties assessed (limitation). Uncertainty assessment performed for RFs No discussion on extrapolating the results to all types of substance functions
		Other observations	
Obligatory RMMs	Reference to GESs	RMMs fit to main emission pathway(s)?	Yes RMMs are appropriate for the process; however unclear if they are obligatory or not

Section	Relevant FS content	Assessment criteria	Assessment result
Release factors	TGD A- and B-Tables for air, industry sector survey for water	Value plausible in relation to the specified OCs?	Yes / No Yes, because the background documentation well describes relation between size/pre-treatment and RFs; No, because no OCs are provided in the general understanding
		Justification of RFs sufficient and can be followed?	Yes Background document fulfils expectations to derivation of RFs based on industry data with some minor aspects that could be improved.
		Method of RF derivation described and understandable	Yes
		Differentiation by properties plausible	Unclear / Not applicable RF air: unclear because values are quoted from OECD ESD / TGD A-tables, where no background data is provided RF water: no differentiation
Narrative	Coverage, processing efficiency, emission pathways	OCs understandable and consistent with other sections?	No No information on OCs, except that formulation and processing are dry processes.
		OC descriptions support the overall understanding?	No No details or explanation about the OCs
		Additional useful info on OCs provided?	Yes General information on RF derivation and reference to Emission Factor guidance

15.5.3 Risk management measures and their efficiencies

Table 76: SpERC ETRMA 3 and 6d - risk management measures

Section	FS content	Assessment criteria	Assessment result
Scope no title in FS	Processes and substance functions	Is RMM info consistent with "Obligatory onsite RMMs"?	Partly Existence of pre-treatment determines sub-spERC; more RMMs are mentioned in the GES
Obligatory RMMs	Reference to GES	RMM info concise and understandable?	Yes GES specifies RMMs in understandable way
		Clear if RFs apply with or without RMMs?	No It is not clear which RMMs should be in place, GES lists several ones but no specific one is mentioned in the FS
		Explicit if RMMs are not needed?	No Unclear if RMMs are obligatory or not
		RMM efficiency provided?	No Only total emissions in relation to substance use, no differentiation into initial RF and RMM efficiency
		RMMs fit to OCs, PCs and substances?	Yes / No RMMs are specific for the sector; no specification of OCs and therefore no link to RMMs, RMMs are not related to substance functions or properties
		RMMs State-of-the-Art?	Yes
		Information source on RMM provided?	Yes
Narrative	Coverage, processing efficiency, emission pathways	RMM info concise and understandable?	No information on RMMs
		RMM info supports the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	

15.5.4 M_{spERC}

The use rate at a typical site is derived using the equation

$$M_{spERC} = M\text{site} \times R \times (W / 100\ phr) / F$$

where

M_{Site} = 52400 t/year (tyres) or 5000 (GRG)
R = rubber compound fraction in good (tyres = 0.85 and GRG = 100)
W = weight content of additive in phr or w%
F = recipe factor (to adjust phr and w% in the equation)

The input value M_{Site} for tyres is calculated by dividing the total tyre production volume by the number of facilities which have been identified in an ETRMA survey. The base data are of 2007. The total production volume for GRG is taken from the OECD ESD on rubber of 2004. However, the figure of 5.000 ton/year GRG per average local site could not be found in the OECD ESD.

The assignment of spERCs (and related release factors) according to a use rate which is derived from the total production volume and the number of sites (tyres) is questionable, as the spERC (and RFs) could change with (significant) changes in the total production volume or the number of installations.

In the example calculation the daily use rate is calculated by dividing the annual use amount by the emission days. The same calculation is performed (for tyres and GRG) in the excel spreadsheet with the recommendations for M_{spERC} assumptions for various additive types. This approach is generally not in conformity with the REACH exposure assessment, as average emissions are assumed and peak emissions are disregarded. This may, however, be acceptable for the rubber industries as the production is comparatively constant.

15.5.5 Days emitting

Table 77: SpERC ETRMA 3 and 6d - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220 and 300	No confusion with working days of workers (e.g. 220), correspond to average production days	Yes Based on survey data and related to size of installation
		Other observations	Unclear, why values are conservative, as the survey resulted in more production days than the defaults in the FS

15.5.6 Appendix

Table 78: SpERC ETRMA 3 and 6d - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No Appendix	Information in Appendix corresponds to information in factsheet	Not applicable

16 SPERC EUROMETAUX 5.1.V2.1 – METALLIC COATING

16.1 General characterization of spERC

The FS Eurometaux 5.1.v2.1: „Industrial use of metals and metal compounds in metallic coating" is available as revised version.

The applicability domain specifies the user group, the covered substances and the covered products. It repeats but does not further specify the process types mentioned in the title.

The operational conditions are characterized by the installation size (specified by annual use amount), the processing containment and the existence of water contact.

The release factors integrate all processing steps and RMMs and are derived from data compiled in the context of EU risk assessment reports.

RMMs are described by type of measure and partly also with operating conditions and the average efficiencies of reported data are provided.

16.2 Candidates for best practice identified in the spERC

The description of the applicability domain gives a clear picture of the coverage. From the list of PROCs it can be deduced that auxiliary processes (transfer of substances / mixtures) are covered. The narrative description clarifies that also cleaning processes are covered and lists the auxiliary activities which are in the remit of the spERC.

Information on the types of RMMs for air emissions wastewater are described in detail with technical specifications and indicators of operating performance, such as removal efficiencies related to the emission concentrations. Removal efficiencies are also provided as % of substance input amounts as reported. The information source for RMM technologies is mentioned (IPPC-BAT document). The most common measures are named, too.

16.3 Shortcomings identified in the spERC

- The SU und some of the PROCs refer to manufacturing and formulation processes (in closed system), which is not consistent with the title and scope. Although to the low exposures from these PROCs they are likely to be factually covered, it may confuse the users of the spERC that they are listed.
- The OCs do not specify the processing conditions but are generic (open/closed and dry/wet processes) and also refer to the installation size. Installation size is seen as surrogate data for specific technical strategies which should be provided as OCs (and/or RMMs). The OCs do not allow deduction of emission pathways or relationships to RFs.

- It is not clearly specified which RMM efficiency is required as a minimum[52].
- The information basis and method for RF derivation[53] is not provided in detail. It is noted that
  - Most data was collected in the year 2000 and the state-of-the-art in installations may have changed[54].
  - The majority of data with known origin comes from northern EU-countries[55], which frequently have higher environmental standards implemented. Hence, it can be questioned if the assumed processing technologies are applicable to other countries. This may be critical, as the spERC's RFs are significantly lower than the conservative defaults of the ERC 5 and the OCs are only generally described.
- The spERC does not specify in how far the RFs depend on certain processing conditions, which could be helpful information for the registrants (e.g. if for closed processes significantly lower release factors are to be expected).

16.4 Conclusions from screening

The spERC covers various metal coating processes, which are only specified as "plating and galvanising" and the operational conditions are only generically derived. Hence, the scope is comparatively broad and not related to the conditions in place in the installations having provided information on the releases. Industry data to derive RFs were compiled for EU risk assessment reports starting in 2000 and in different, but mainly western EU countries. No raw data is presented and the method of RF derivation is not transparently documented.

16.5 Detailed assessment results

16.5.1 Applicability domain

Table 79: SpERC Eurometaux: metallic coating- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of metals and metals	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes

[52] It is not specified which of the measures would be most suitable for which type of process or metal. This would be useful information, too.

[53] Data extracted from the EU risk assessment reports and registration information

[54] State-of-the-art is more likely to have reduced than increased emissions (better processing and RMM technologies). Therefore, this is not regarded as critical.

[55] A larger fraction of information comes from Italy and some from Spain; no further southern European Member State is included. The eastern European countries are represented by data from the Czech Republic (approximately 1-2%).

Section	Relevant FS content	Assessment criteria	Assessment result
	compounds in metal coating	Title in line with ENES short titles?	Yes
Scope	Limitations on user group, substance, products and database	Description concise and simple?	Yes Some explanation could be moved to the narrative; more information on process types would be useful
		Users, substances, products, processes specified or excluded?	Yes Metals and compounds are explicitly included or excluded; a range of the water partitioning coefficient further limits the scope.
		Cleaning and maintenance explicitly mentioned?	No Unclear if covered (explained in the narrative, however).
		Other observation	Information on the justification is confusing, (data basis covers only three metals, whereas scope covers more).
UDs	PROCs, SU and ERC	UDs reflect "Title" and "Scope"?	No SU14 not consistent: title specifies use not manufacture PROC1 to PROC4 (manufacturing and formulation processes) are confusing, as they do not relate to metallic coating (except potentially the mixing of the formulations for use in plating as preparatory process).
OCs	Installation size, all steps integrated, processing condition	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Details on processing and waste handling	Domain narrated understandably?	Yes Additional useful information is provided
		Domain consistent with "Title" and "Scope"?	Yes

16.5.2 Operational conditions and release factors

Table 80: SpERC Eurometaux: metallic coating - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use metal coating	Title consistent with the OCs?	Yes However, information is very generic in OC section
Scope	Limits products substances, user group	OCs worded as in "OC section"?	Not applicable No OC information in scope
UDs	PROCs, SU and ERC	PROCs reflect "OCs"?	No Inconsistent with OCs, as PROCs indicate coverage of continuous and batch processes and OCs do not.
OCs	Installation size, processing condition and all processing steps incl. cleaning	OCs concise and understandable?	Yes Information is very generic
		OCs consistent with other sections?	Yes
		Influence of OCs on release made explicit?	Partly Containment and dry/wet processes give qualitative information
		OCs State-of-the-Art?	Unclear Conditions are very generic; database is of 2000
		Other observations	Information that the spERC integrates all processes is already contained in the narrative. It does not relate to the OCs and is hence not appropriate here.
Obligatory RMMs	Measures to air, water and waste	RMMs fit to main emission pathway(s)?	Yes
Release factors	Air, water, soil and waste based on	Value plausible in relation to OCs?	No The justification for RF air/water and waste provides the result of processing reported RFs from risk assessment
		Justification of RFs	

Section	Relevant FS content	Assessment criteria	Assessment result
	industry survey data	sufficient and can be followed?	reports and registration dossiers. The base data is not made available and the derivation method of RFs (by the reporting companies?) is not provided. It is not clear if sites lacking RMMs specified as obligatory are included in the RF derivation or not. The justification for RF to soil is insufficient, as a value may be necessary for regional assessments.
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable
Narrative	Details on processing steps and waste handlings	OCs simple & consistent with other sections?	Yes
		OC descriptions support the understanding?	Yes
		Additional useful info on OCs provided?	Yes

16.5.3 Risk management measures and their efficiencies

Table 81: SpERC Eurometaux: metallic coating - risk management measures

Section	Relevnt FS content	Assessment criteria	Assessment result
Scope	No RMM info	RMM info consistent with "Obligatory RMMs"?	Not applicable
Obligatory RMMs	Detailed measures for water and air, general information on waste.	RMM info concise and understandable?	Partly Lists of RMMs include technical specifications so that DUs can implement them.
		Clear if RFs apply with or without RMMs?	Yes However, unclear which (combination of) RMMs are obligatory
		Explicit if RMMs are not needed?	Not applicable
		RMM efficiency provided?	The information on types of RMMs for air and water is clear and specifies the technical requirements to the measures regarding the maximum emission concentrations. No individual efficiencies are provided for air RMMs. Typical removal efficiencies are provided for water RMMs. Waste: information corresponds to good practice. No quantification is provided.
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes
		Information source on RMM provided?	Yes
Narrative	Details on processing steps and waste handlings	RMM info concise and understandable?	No additional RMM information provided
		RMM info support the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	Yes Information on waste classification and treatment options

16.5.4 Days emitting

Table 82: SpERC Eurometaux: metallic coating - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220	No confusion with working days of workers (e.g. 220); correspondence to average production days	Based on industry survey

16.5.5 Appendix

Table 83: SpERC Eurometaux: metallic coating - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No Appendix	Information in Appendix corresponds to factsheet	Not applicable

17 SPERC EUROMETAUX 2.5-6A – USE OF METAL COMPOUNDS

17.1 General characterization of spERC

The FS Eurometaux 2.5-6a: “Industrial use of metal compounds” covers three sub-spERCs for different sectors (plastics and rubber industry, textile industry, glass, ceramics and crystal industry). Here, the sub-spERC on the use of metal compounds in the plastics and rubber industry is assessed.

The applicability domain is explained specifying the use sectors and product types as well as the substance domain by defining “metal compound” and limiting the water partition coefficient for suspended metals.

The operational conditions are characterized by installation size (annual use amount), degree of containment and water contact during processing.

The release factors are integrated and were derived from measured, site-specific release factors used in the EU risk assessment program (between 2003 2009).

Obligatory RMMs are listed by type of technique and are technically specified (e.g. resulting emission concentration after treatment).

17.2 Candidates for best practice identified in the spERC

The description of the applicability domain gives a clear picture of the coverage. From the list of PROCs it can be deduced that auxiliary processes (transfer of substances / mixtures) are covered. The narrative description clarifies that also cleaning processes are covered and lists the auxiliary activities which are in the remit of the spERC.

Information on the types of RMMs for air emissions wastewater are described in detail with technical specifications and indicators of operating performance, such as removal efficiencies related to the emission concentrations. Removal efficiencies are also provided for water RMMs as % of substance input amounts as reported. The information source for RMM technologies is mentioned (IPPC-BAT document). The most common measures are named, too.

17.3 Shortcomings identified in the spERC

- The title does not fully fit to the respective ERCs: formulation is not named and the intermediate use of substances is not intuitively associated with the spERC title.
- The list of ERCs and the sub-spERC codes do not correspond as suggested by industry guidance[56].
- The listed PROCs mainly concern formulation and raw materials handling; only one regards calendaring operations. This does not correspond to the sub-spERC's title.
- The OCs do not specify the process but are generic (open/closed and dry/wet processes) and also refer to the installation size. Installation size is seen as surrogate data for more specific processing conditions and RMMs which should be provided in the section on OCs and/or RMMs.
- The OCs do not allow deduction of emission pathways or relationships to RFs.
- It is not specified which RMM efficiency is required as a minimum and it is not clear if one or a combination of more RMMs are necessary pre-condition.
- The information basis and method for RF derivation[57] is not provided in detail. It is noted that
    - Most data was collected in the year 2000 and the State-of-the-Art in installations may have changed[58].
    - The majority of data with known origin comes from northern EU-countries[59], which frequently claim to have higher environmental standards implemented. Hence, it can be questioned if the assumed processing technologies are applicable to other countries. This may be critical, as the release factors of the spERC are significantly lower than the conservative defaults of the ERC 5 and the operational conditions are only generally described.

[56] CEFIC: Cefic Guidance Specific Environmental Release Categories (SPERCs) Chemical Safety Assessments, Supply Chain Communication and Downstream User Compliance, October 2012 Revision: 2

[57] Data extracted from the EU risk assessment reports and registration information

[58] State-of-the-Art is more likely to have lower emissions (better processing and RMM technologies). Therefore, this is not regarded as critical.

[59] A larger fraction of information comes from Italy and some from Spain; no further southern European Member State is included. The eastern European countries are represented by data from the Czech Republic (approximately 1-2%).

- The spERC does not specify in how far the RFs depend on certain processing conditions, which could be helpful information for the registrants (e.g. if for closed processes significantly lower release factors are to be expected).

17.4 Conclusions from screening

The spERC has a comparatively detailed and clear description of the applicability domain with information in the sections scope, use descriptors and OCs; however no concrete information on the processes is included and it not directly clear if formulation and industrial use are covered.

The RFs integrate the entire process (including RMM) and were derived from various site-specific release factors collected in different countries and over a period of 6 years in the scope of EU RARs for different metals. Although the individual information in the RARs is peer reviewed, no documentation of whether or not information collection and assessment methods to derive site-specific release factors were always the same and how that data was processed is included.

17.5 Detailed assessment results

17.5.1 Applicability domain

Table 84: SpERC Eurometaux metals in plastics and rubber- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use of metal compounds in plastics and rubber industry sector	"Title" unambiguous?	Yes However, the list of PROCs contains formulation processes, which are not listed in the title[60]
		"Title consistent with "Scope"?	Yes
		SpERC correspond to ERC?	Partly[61] ERC 2 is not part of the title. ERC 6a is manufacturing which is not intuitively included in the title.
		Title in line with ENES short titles?	Unclear Many of the PROCs refer to synthesis and formulation processes, only one (calendaring) is an industrial use.
Scope	Limitations on user group, substances (definition of me-compound, partition coefficient), product types	Description concise and simple?	Partly User groups repeat the sectors of the sub-spERC codes Background information on the data base for RF derivation is mixed with limitations (metals in database, time and locations of data collection).
		Users, substances, products, processes specified or excluded?	Yes
		Cleaning and maintenance	No

[60] In the rubber industries, formulation and processing frequently occur at one site. In the plastics industry this is not necessarily the case.

[61] The coding of sub-spERCs is not clear. If the code 2.5-6a means all ERCs from ERC 2 to ERC 6a, then ERC 3 should also be listed and ERC 6b is not consistent.

Section	Relevant FS content	Assessment criteria	Assessment result
		explicitly mentioned?	
UDs	PROCs, SU, ERCs	UDs reflect "Title" and "Scope"?	No[61] Unclear, why ERC 4, ERC 5 and ERC 6a are included in the list and why ERC 2.5 does not occur → the code system normally refers to the ERC
OCs	Wet & dry, open & closed, installation size	OCs consistent with "Title" and "Scope"?	Yes
Narrative	All processes integrated; waste disposal info	Domain narrated understandably?	Yes
		Domain consistent with "Title" and "Scope"?	Yes

17.5.2 Operational conditions and release factors

Table 85: SpERC Eurometaux metals in plastics and rubber - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use in plastics and rubber industry	Title consistent with the OCs	Yes
Scope	User group, product types	OCs worded as in "OC section"?	No Different types of information are included
UDs	PROCs, SU, ERCs	PROCs reflect "OCs"?	Partly Majority of PROCs regard formulation but no uses; calendaring is only spERC on industrial use
OCs	All processes integrated, installation size, open and closed, wet and dry	OCs concise and understandable?	Partly Explanation that all processes are integrated should not be part of the OC description
		OCs consistent with other sections?	Yes
		Influence of OCs on release explicit?	No
		OCs State-of-the-Art?	No OCs are too general to judge on state-of-the-art
		Assumptions and limitations explained?	No
Obligatory RMMs	Air and water, detailed with efficiency	RMMs fit to main emission pathway(s)?	Yes
Release factors	Air, water, soil, waste; justification: 90th percentile of reported site-specific release factors + number of sites	Value plausible in relation to OCs?	Yes Air and water emissions are both possible (dry/wet processing, open and closed systems).
		Justification of RFs sufficient and can be followed?	No Background information on the database for RF derivation is only briefly described; no detailed information. Justification for the missing RF soil neglects that regional assessment would require argumentation of "no emission".
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible	Not applicable
		Other observations	The number of sites (28/26) is comparatively low
Narrative	All processes integrated; waste disposal info	OCs simple & consistent with other sections?	No further information on OCs
		OC descriptions support overall understanding?	
		Additional useful info on OCs provided?	

17.5.3 Risk management measures and their efficiencies

Table 86: SpERC Eurometaux metals in plastics and rubber – risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	No RMM info	Is RMM info consistent with "Obligatory RMMs"?	No applicable
Obligatory RMMs	Air and water, detailed with efficiency	RMM info concise and understandable?	Partly Lists of RMMs include technical specifications so that DUs can implement them. Information on how RMMs were derived and which are required are mixed.
		Clear if RFs apply with or without RMMs?	Yes But unclear which (combination of) RMMs are obligatory
		Explicit if RMMs are not needed?	Not applicable
		RMM efficiency provided?	Partly Information on RMM types for air and water is clear and specifies the technical requirements regarding maximum emission concentrations. No individual efficiencies are provided for air RMMs. Typical removal efficiencies are provided for water RMMs. Waste: information corresponds to good practice. No quantification is provided.
		RMMs fit to OCs, PCs and substances?	Yes
		RMMs State-of-the-Art?	Yes
		Information source on RMM provided?	Yes
Narrative	All processes integrated; waste disposal info	RMM info concise and understandable?	No additional information on RMMs provided
		RMM info support the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	Yes

17.5.4 Days emitting

Table 87: SpERC Eurometaux metals in plastics and rubber - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	216	No confusion with working days of workers (e.g. 220); correspondence to average production days	Based on industry data, no documentation of base information provided.

17.5.5 Appendix

Table 88: SpERC Eurometaux metals in plastics and rubber - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No Appendix	Information in Appendix corresponds to factsheet	Not applicable

18 SPERC FEICA 5.1.A.V2 – ADHESIVES IN VARIOUS SECTORS

18.1 General characterization of spERC factsheet

The factsheet FEICA "Industrial Use of Substances other than Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others" covers 5 sub-spERCs, two of which specifying ERC 4 and three specifying ERC5. The FS is available as revised version dated February 2013.

The applicability domain is characterized as covering a wide range of uses with different techniques being applied indoors. The sub-spERCs differ by substance type (volatiles and non-volatiles) as well as by use sectors.

The operational conditions are described as phrases and free text. Three sets of OCs are defined for the five sub-spERCs. They specify the location of use and where the substance ends up (matrix, emission pathway).

Release factors are provided for air, water, soil and waste and justified with information in the OECD ESD for paints, lacquers and varnishes, with partly modified values.

No obligatory RMMs are included for any of the sub-spERCs.

18.2 Candidates for best practice identified in the spERC

No particular aspects identified.

18.3 Shortcomings identified in the spERC

- The coverage is not consistent: some PROCs are only mentioned as UD but not described in any texts, the enumeration of sectors and process examples in the spERC code and scope are confusing.
- The applicability domain does not further specify the process types covered by the spERC.
- More clarity could be achieved if the operational conditions were commonly worded; it is unclear why they are separated for the sub-spERCs, as all involve indoor use and negligible/no water contact.
- The OCs are very general; no specific information on the processing steps and their conditions are provided.
- No RMMs are considered in the spERC. The inclusion of the process "spraying" puts into question if actually no RMMs are necessary for the air and water pathway (e.g. use of wet scrubbers).
- The RFs are derived from the OECD ESD on paints but some of the values cannot be traced to the original source.
- No relation between the operational conditions and RMMs assumed in the ESD is made to the conditions of use in the spERC. Furthermore,

no detailed justification is provided why it is regarded appropriate to extrapolate the RFs of the comparatively few processes of paint application to the many processes in various sectors listed in the spERC's scope.

- The RF to water in the OECD ESD applies if cleaning is conducted with solvents which are disposed of as waste and that water from RMMs in wet spray booths are not discharged. This is not clearly described as limitation to the applicability domain for that process in the spERC.
- It is not discussed, how the release factor to waste is understood and the "zero emission" cannot be justified with view to the factors provided in the OECD ESD.
- The narrative is repetitive without providing a clearer picture of how the processes are carried out and what is relevant regarding environmental emissions.

18.4 Conclusions from screening

The FEICA spERC 5.1a.v2 has a very broad scope and generally worded operational conditions; therefore, the spERC is applicable to a wide range of processes. This leads to doubts on whether the RFs actually apply to all adhesive uses in all described sectors and application processes. This cannot be checked by a screening analysis but would require checking the implementation in the different sectors.

18.5 Detailed assessment results

18.5.1 Applicability domain

Table 89: SpERC FEICA industrial use of adhesives - applicability domain

Section	FS content	Assessment criteria	Assessment result
Title of spERC	Industrial Use of Substances other than Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives	"Title" unambiguous?	No The wording of the sub-spERC code is confusing as it appears that not only the use in adhesives is covered
		"Title consistent with "Scope"?	
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Unclear Very many sectors are listed
Scope	Different techniques for indoor use; solvents / substances which do not evaporate after curing	Description concise and simple?	No First sentences double the title. Specification that only indoor uses are covered is contradicts Appendix (also outdoor uses)
		Users, substances, products, processes specified or excluded?	No
		Cleaning and maintenance explicitly mentioned?	No

Section	FS content	Assessment criteria	Assessment result
UDs	SU, ERC, PROC, PC	UDs reflect "Title" and "Scope"?	Mostly PC 9a and 9b are not consistent with the spERC title and scope descriptions, which limit the substance use to adhesives PC 10 is not part of the current use descriptor guidance, considering the title and scope, the use in adhesives (PC1) should be sufficient (no "other") needed.
OCs	Indoor, inclusion in matrix, negligible WW emissions, no water contact	OCs consistent with "Title" and "Scope"?	Yes
Narrative	List of products falling under "others"	Domain narrated understandably?	No The narrative description consists of 3 repetitions of the same text block (slightly different in the last paragraph). The term "others" in the list of applications is explained but is not comprehensive, hence no narrowing of scope occurs. No details are given on the processing techniques, relevant exposure determinants or waste management.
		Domain consistent with "Title" and "Scope"?	Yes

18.5.2 Operational conditions and release factors

Table 90: SpERC FEICA industrial use of adhesives - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Industrial use in various sectors"	Title consistent with the OCs?	Yes
Scope	Different techniques indoor use; no evaporation	OCs worded as in "OC section"?	Yes Slightly different wording and partly information on different aspects.
UDs	PROC	PROCs reflect "OCs"?	PROCs 2-5 are inconsistent with the scope (manufacture and formulation). PROC 11 (non-industrial spraying) indicates a professional (or consumer) use of adhesives, which is not consistent with the scope. PROC 12 (use of blowing agents) is not a use of an adhesives and hence inconsistent.
OCs	Indoor, application to solid matrix, negligible WW emissions, no water contact in process	OCs concise and understandable?	Yes The term "negligible wastewater emissions" is not defined. The lack of water contact is mentioned for the first time; however it is unclear if this actually covers all processes in all sectors (e.g. textile, paper).
		OCs consistent with other sections?	The operational conditions are not consistent with the CHESAR determinants (indoor and outdoor use).
		Influence of OCs on release explicit?	No
		OCs State-of-the-Art?	Cannot be judged OCs are too general
Obligatory RMMs	No RMMs considered	RMMs fit to main emission pathway(s)?	Yes However, doubt if all processes do not involve water contact

Section	Relevant FS content	Assessment criteria	Assessment result
Release factors	RF to air, water, soil and waste. Justification based on OECD ESD for paints and coatings with modification	Value plausible in relation to OCs?	No c.f. justification
		Justification of RFs sufficient and can be followed?	**RF air** The release factor of 0.01 cannot be found in the OECD ESD; it is lower than any of the factors specified for the use of coatings in industrial uses not concerning the manufacture and repair of vehicles. **RF water** The OECD ESD specifies that no water emissions occur for the listed processes. The ESD however specifies that cleaning takes place with solvents, which are then disposed of as waste. For the use of spray booths with wet backing, a release factor of 7.2% is specified for water. **RF soil** No justification is provided; although outdoor use is included (in the CHESAR determinants) **RF waste** In the OECD ESD the release factors to waste for the relevant processes range from 1.5 to 51.8. Hence, the factor of "zero" specified by FEICA cannot be followed.
		Method of RF derivation described and understandable?	
		Differentiation by properties plausible?	Not applicable
Narrative	List of products falling under "others"	OCs simple & consistent with other sections?	Not applicable
		OC descriptions support the understanding?	
		Additional useful info on OCs provided?	

18.5.3 Risk management measures and their efficiencies

Table 91: SpERC FEICA industrial use of adhesives - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	No evaporation	RMM info consistent with "Obligatory onsite RMMs"?	Not applicable
Obligatory RMMs	No RMMs considered	RMM info concise and understandable?	Yes
		Clear if RFs apply with or without RMMs?	Yes
		Explicit if RMMs are not needed?	Yes
		RMM efficiency provided?	Yes
		RMMs fit to OCs, PCs and substances?	**Air** As spray applications are covered (aerosol formation) it is questionable if no RMMs are necessary for air and water (e.g. wet scrubber) emissions. The OCED ESD, which is used to justify release factors to air includes information on RMMs applied in the processes. **Water** The information on water RMMs is consistent with the information in the CHESAR determinants and the OCs. The OCED ESD includes information on RMMs applied in the processes (wet spray booths).
		RMMs State-of-the-Art?	Unclear Many processes addressed, unclear if none of these require RMM due to adhesive use
		Information source on RMM provided?	No
Narrative	List of products	RMM info concise and understandable?	No information on RMMs included

Section	Relevant FS content	Assessment criteria	Assessment result
	falling under "others"	RMM info supports the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	

18.5.4 Days emitting

Table 92: SpERC FEICA industrial use of adhesives - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	220	No confusion with working days of workers (e.g. 220); correspondence to average production days	No justification, unclear if confused with workers' work days

18.5.5 Appendix

Table 93: SpERC FEICA industrial use of adhesives - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	Dry process, indoor and outdoor, includes cleaning with solvents (disposal as waste), efficient use of raw materials	Information in Appendix corresponds to information in factsheet	Some information is not included in the FS but important, such as dry process, indoor and outdoor[62] use, inclusion of equipment cleaning with organic solvents and waste disposal.

19 SPERC IFRA 2.1B.V1 – FORMULATION OF FRAGRANCES

19.1 General characterization of spERC

The factsheet IFRA: "Formulation of fragrance compounds" covers 2 sub-spERCs which differ by the installation size. Here, formulation at small sites is assessed.

The applicability domain includes an explanation of which formulation step of fragrances is covered[63], a specification of the substance domain, a description of installation sizes and a list of covered operations.

The operational conditions are defined separately for both sub-spERCs and include information on the number of batches and dosing, the cleaning

[62] In the section „scope", only indoor uses are mentioned

[63] The factsheet covers the formulation of the fragrance mixture and not the formulation of fragrances into consumer products.

processes as well as main points of release from the process with quantified ranges of losses.

The RF air is the same as ERC 2 due to lack of more specific data. The RF water and the RF soil are justified with information from an industry survey; no RF waste is provided.

No obligatory RMMs are needed according to the factsheet.

19.2 Candidates for best practice identified in the spERC

The description of the scope is detailed and includes explanation of the process helpful to spERC users which are not familiar with the sector. The differentiation of sites is explained with annual production volumes and the substance domain is specific so no misunderstanding should occur. Furthermore the list of operations covered is detailed and clear.

The operational conditions describe details of the processing steps including where emissions could occur. This allows plausibility checking and deriving information to communicate to downstream users for checking the implementation of the ES.

The justification of the RF to soil is detailed and can be followed. It is linked to respective operational conditions which limit release to soil.

19.3 Shortcomings identified in the spERC

- The OC description includes quantitative information on estimated losses which cannot be matched with the quantified release factors. This is confusing and the added value of that information is unclear.
- The RF to water is justified with information from an industry survey; however, background information on that survey, such as number of questionnaires sent out, type of questions asked, method of information collection at sites and derivation of release factors is missing. Furthermore, the estimate of a COD of 3mgO / mg substances, which is a core parameter of the RF derivation, is not substantiated with data.
- The RF to waste is missing.
- The narrative partly repeats the information in the section scope.

19.4 Conclusions from screening

The sub-spERC is well developed regarding the description of the applicability domain and the operational conditions are provided in detail and related to RFs. The RF to water is derived from a sum-parameter and based on industry data; however, as the base data is not provided and the data collection and assessment method are not transparent the values cannot be followed.

19.5 Detailed assessment results

19.5.1 Applicability domain

Table 94: SpERC IFRA formulation at small sites- applicability domain

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Formulation of fragrance compounds at small sites	"Title" unambiguous?	Yes
		"Title consistent with "Scope"?	Yes
		SpERC corresponds to ERC?	Yes
		Title in line with ENES short titles?	Yes Installation size is 3rd identifier
Scope	Formulation step, substances, explanation of installation sizes, list of operations	Description concise and simple?	Yes Descriptions could be shortened
		Users, substances, products, processes specified or excluded?	Yes No exclusion but concrete lists of substances and processing steps covered
		Cleaning and maintenance explicitly mentioned?	Yes
UDs	SU, PROCs	Do UDs reflect "Title" and "Scope"	Yes
OCs	Batches, dosing, cleaning, ranges of release, filling	OCs consistent with "Title" and "Scope"?	Yes
Narrative	Repetition of scope, process scheme, waste handling	Domain narrated understandably?	Yes Figure is helpful
		Domain consistent with "Title" and "Scope"?	Yes However, a lot of information is doubled.

19.5.2 Operational conditions and release factors

Table 95: SpERC IFRA formulation at small sites - operational conditions

Section	Relevant FS content	Assessment criteria	Assessment result
Title of spERC	Formulation at small sites	Title consistent with the OCs?	Yes
Scope	List of operations	OCs worded as in "OC section"?	Not applicable No OCs included in the scope description
UDs	SU, PROCs	PROCs reflect "OCs"?	Yes
OCs	Batches, dosing, cleaning, ranges of release, filling	OCs concise and understandable?	Partly OCs are detailed and understandable; information on releases is mixed with OC description.
		OCs consistent with other sections?	Yes
		Influence of OCs on release explicit?	Yes Points of release in the formulation process are highlighted, however only for water emissions.
		OCs State-of-the-Art?	Yes
Obligatory RMMs	Not needed	RMMs fit to main emission pathway(s)?	Not applicable
Release factors	Air, water, soil based on ERC and industry survey	Value plausible in relation to OCs?	Yes RF to waste is missing
		Justification of RFs sufficient and can be followed?	**Air** Same as ERC due to lack of more specific data. Information on fragrances' vapour pressures is listed showing that most have low volatilities, whereas ERC is based on high volatility. **Water** Information from a survey with 7 replies was evaluated where COD in wastewater was related to fragrance
		Method of RF derivation described and understandable?	

Section	Relevant FS content	Assessment criteria	Assessment result
			emissions prior to any RMM by assuming an average COD of 3 mgO / mg substance. The number of responding formulators appears small (no information on the total number exists) and the assumption of COD per fragrance substance is not substantiated by data. Furthermore, background information on the survey is missing. **Soil** A detailed list of reasons is provided why no soil emissions are expected, including reference to the OCs. **Waste** No RF provided
		Differentiation by properties plausible	Not applicable
Narrative	Repetition of scope, process scheme, waste handling	OCs simple & consistent with other sections?	Yes However, information is doubling with title and scope
		OC descriptions support the understanding?	Yes Figure is useful
		Additional useful info on OCs provided?	No

19.5.3 Risk management measures and their efficiencies

Table 96: SpERC IFRA formulation at small sites - risk management measures

Section	Relevant FS content	Assessment criteria	Assessment result
Scope	No RMM info	Is RMM info consistent with "Obligatory onsite RMMs"?	Not applicable
Obligatory RMMs	Not needed	RMM info concise and understandable?	Not applicable
		Clear if RFs apply with or without RMMs?	
		Explicit if RMMs are not needed?	
		RMM efficiency provided?	
		RMMs fit to OCs, PCs and substances?	
		RMMs State-of-the-Art?	
		Information source on RMM provided?	
		Other observations	The section optional RMMs provides RMMs for water including reported efficiencies from the industry survey. Their use is reported as common practice and efficiencies are not related to substance properties.
Narrative	Repetition of scope, process scheme, waste handling	RMM info concise and understandable?	No RMM information provided
		RMM info supports the understanding?	
		Additional useful RMM information given?	
		Additional info on waste management?	Yes

19.5.4 Days emitting

Table 97: SpERC IFRA formulation at small sites - emission days

Section	FS content	Assessment criteria	Assessment result
Days emitting	250 based on industry survey	No confusion with working days of workers (e.g. 220); correspondence to average production days	Based on OECD ESD

19.5.5 Appendix

Table 98: SpERC IFRA formulation at small sites - appendix (CHESAR import)

Section	FS content	Assessment criteria	Assessment result
Appendix	No appendix	Information in Appendix corresponds to information in factsheet	Not applicable

20 REFERENCES

ATIEL: Document 5b: GES Use Groups B-F (industrial & professional, Version 1.0, 7 January 2013
ATIEL: Document 7: Environmental GES Values Tables, Version 1.0, 7 January 2013
ATIEL: Document 9: Environmental GES - Explanation of Fields and Checks, Version 1.0, 7 January 2013

CEFIC: Cefic Guidance Specific Environmental Release Categories (SPERCs) Chemical Safety Assessments, Supply Chain Communication and Downstream User Compliance, October 2012 Revision: 2

CEPE: REACH: descriptors of use: coatings and inks manufacture and application; May 2009

ETRMA: Generic Exposure Scenario on General Rubber Goods; and Generic Exposure Scenario on Tyres

ETRMA: Tyre Generic Exposure Scenario Production Rate Guidance; Pittsburgh, PA; December 16, 2009; Version 1.0

ETRMA: MspERC calculation for tyres, August 2010;

EU Commission; Joint Research Center: Technical Guidance Document on Risk Assessment in support of Commission Directive 93/67/EEC on Risk Assessment for new notified substances; Commission Regulation (EC) No 1488/94 on Risk Assessment for existing substances; Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market; part 2, 2003;

OECD ESD on the coatings industry: OECD SERIES ON EMISSION SCENARIO DOCUMENTS Number 22, EMISSION SCENARIO DOCUMENTS ON COATING INDUSTRY (Paints, Laquers and Varnishes), ENV/JM/MONO(2009)24. July 2009

OECD ESD on lubricants: OECD SERIES ON EMISSION SCENARIO DOCUMENTS Number 10, EMISSION SCENARIO DOCUMENT ON LUBRICANTS AND LUBRICANT ADDITIVES, ENV/JM/MONO(2004)21; November 2004

OECD ESD Rubber Industries: OECD SERIES ON EMISSION SCENARIO DOCUMENTS Number 6 EMISSION SCENARIO DOCUMENT ON ADDITIVES IN RUBBER INDUSTRY, ENV/JM/MONO(2004)11, June 2004.

ANNEX II

ECHA SERVICE CONTRACT "ASSESSMENT OF RELIABILITY OF SPERCS"

SPERC REQUISITES

1 INTRODUCTION TO THE SPERC REQUISITES

The spERC requisites aim to specify which information types should be included in a factsheet and at which level of detail so that they are regarded as sufficiently transparent, understandable and plausible for use in the exposure assessment under REACH.

In the first sub-section of this paper, general aspects on the expectations towards the spERCs are described. The second sub-section includes a table listing the expected information types in a spERC with some “guidance notes”. Sub-section three contains a proposal for spERC documentation and the last part outlines the process of further developing and finalising the spERC requisites.

1.1 General considerations on the quality criteria for spERCs

1.1.1 Aim of spERCs

The aim of the spERCs is to support the development of a CSR and hence to “demonstrate safe use” of a substance in a specific use. It is not clearly defined in the REACH text and the ECHA guidance documents on information requirements and chemical safety assessment how the term “demonstrate safe use” should be understood. The extent to which the values, assumptions or information sources for the determinants of release should be provided by the registrant and be included in a spERC respectively is not defined.

The understanding of “demonstration of safe use” underlying the spERC requisites developed in this project is pragmatic: all information that is necessary for an evaluator, who has no in-depth knowledge of the industry sectors using the substance, to assess the plausibility of the release factors (leading to an RCR <1) based on a sound justification and transparent documentation of any assumptions made and any information sources used.

At the same time, the conditions of safe use, documented in the CSR, are to be communicated to downstream users in a form supporting the implementation of the DUs duties under REACH and other legislation. The communication aspect is not further considered in the following.

1.1.2 Ensuring consistency at the level of mixtures

It would be useful if a spERC ensures consistency of OCs and RMMs used at mixture level. This type of standardisation of information would be a significant support to formulators who could then more easily merge exposure scenarios received for the components of their mixtures. This would, in contrast to the beginning of the discussion of spERCs imply that more than one ERC could be covered by a spERC factsheet, as some ERCs differ exactly by the function of the component (process auxiliary and substance to be included in the matrix, e.g. ERC 4 and ERC5).

To ensure consistency at mixture level, a spERC should refer to the emission situation at the level of a mixture (product category) and should:

- contain one set of operational conditions for all functional components / substance types which could occur in a mixture
- contain one set of RMMs for all functional components / substance types, however with differentiated required or applicable efficiencies based on substance properties,[64]
- define sub-spERCs which contain release factors separately where these differ for the functional components / substance types.

1.1.3 Use of undefined determinants

Undefined determinants of exposure are expressions describing characteristics of a process or installation that result from certain OCs and RMMs. In the current spERC versions these conditions of use are normally assumed but not explicitly described. The most common examples of this type of surrogate information are the “efficient raw materials use” and the “installation size”. These terms are not acceptable to qualify OCs, RMMs, release determinants or the applicability domain.

The term “efficient use of raw materials” should not be used but the technical strategies leading to low release factors (and efficient raw materials use) should be provided, including reference to the process details. If the term is used, respective information on the technical strategies should be included in the factsheet to explain what it means[65].

Differentiations of sub-spERCs by the degree of raw material efficiency indicate the existence of different OCs and hence, separate factsheets should be developed rather than different sub-spERCs (same set of OCs within one spERC).

[64] Some substances in a mixture may not require a RMM (e.g. non-volatile substances in non-spray applications do not require waste air treatment) whereas others may do so, due to their substance properties. Therefore, the efficiency values should be specified for the substance types, in order to ensure plausibility and consistency for evaluators and registrants.

[65] This may be placed also in a background document (c.f. Section 1.3); however, as this is essential information to apply the spERC and the RFs, respective information should occur in the sections “operational conditions” and “RMMs”.

The same applies to the use of the term “large, medium or small size installations”[66], which is commonly used to allude to the absence or presence of RMMs. The RMMs should be explicitly stated in the respective FS section or, if the installation size is used as determinant, this should be explained[65]. If the overall RMM strategy at the level of installations is the reason for sub-spERCs, separate factsheets should be developed for processes with or without respective RMMs (only one set of OCs and RMMs per factsheet).

1.1.4 Applicability domain

The applicability domain of a spERC should, as a minimum, provide information related to the covered:

- substance properties / types / functions
- mixture types and
- application techniques / processes.

Further information limiting or describing the applicability domain of a spERC may be included, but should not double information e.g. in the spERC title.

1.1.5 Release factor justification

The release factors and their justification should be consistent with the OCs and RMMs specified in the FS. It is regarded useful to provide the full[67] justification not in the factsheet but as part of an additional background document (c.f. Section 1.3.) The justification should include as a minimum a:

- description of the method, how the release factors were derived,
- reference to or description of the primary information source from which the release factors were derived;
- precise link to the location where the information can be obtained; the information source should be publicly available[68].

1.1.6 Operational conditions

All operational conditions in a factsheet should apply to all sub-spERCs in a factsheet. The OC description should explicitly name the process and processing steps (including if auxiliary processes such as cleaning and maintenance are covered), any measures in place leading to efficient raw materials use, the relevant emission points and sources of waste.

[66] In most spERCs using the term, the substance use volume is provided as indicator for large, medium and small. However, no information on how the installations differ in terms of RMM strategy or process control is provided.

[67] The essential arguments / information upon which the release factors are based should however be part of the factsheet with reference to the background document, if one exists.

[68] If confidential business information limits the public access to that information, other strategies to allow verification of the justification of RFs should be found, e.g. third party certification of the information.

1.1.7 Risk management measures

All RMMs that need to be in place / are precondition to apply the RFs in the spERC must be listed in the section „obligatory RMMs[69]“. This holds true regardless of whether or not the RMMs are process-integrated or measures which are “added” to the process.

“Add-on measures” are considered RMMs which are operated separately from the main process and may even be connected to several different processes, for example after burners for waste gas treatment or wastewater treatment plants. The efficiency for add-on RMMs can in principle be determined by measuring / modelling the substance input from the process to the device and the final emission to the environment.

Process- integrated measures are considered those RMMs, which cannot be clearly separated from the process and which are e.g. part of a strategy for „efficient raw materials use“. In this case it may not be possible to determine the initial release from the process and the RMM efficiency separately as they are too closely connected. Process-integrated measures are frequently part of “strategies for efficient raw materials use”.

The information that should be provided on RMMs depends on whether or not they are process-integrated or add-on measures:

- For add-on measures, the required or applicable RMM efficiency should be specified and at least one example of a technology that can achieve this efficiency for the substances in the (sub-)spERC must be described[70]
- For process integrated measures the RMM technology which is assumed / implied as basis of the derivation of the release factors must be clearly described[71]. An explanation why no separate efficiency value can be derived should be provided, too.

If sub-spERCs are defined by substance property, substance type or substance function, the efficiency should be expressed for the respective differentiation of sub-spERCs. The efficiency may be expressed as % reduction of the substance amount entering the risk management measure.

The FS section on additional / optional RMMs is only a suggestion to the registrants which RMMs could be used for iteration, if safe use cannot be demonstrated using the spERC and the RMMs included in the RFs.

[69] The factsheet section “obligatory RMMs” includes information on those RMMs which are taken into account in the derivation of the release factors. In contrast, the RMMs in the section “additional RMMs” are information that is offered to the registrant to iterate the assessment, in case safe use cannot be demonstrated using the spERC.

[70] If several exemplary technologies are described, DUs may select the RMM which is already in place or is most suitable for thir process.

[71] In this case the DUs have to implement the measure which is prescribed as they have no information on which efficiency the RMM has to have.

1.1.8 Daily use rate

The daily use rate and the emission factors must be consistent in their reference to the use situation addressed (e.g. seasonal peak use as for textile dyeing, daily maintenance of baths or exchange of baths etc.). The use rates should be realistic in particular for professional and consumer uses as no feedback and iteration mechanism is foreseen.

1.2 SpERC requisites according to the factsheet structure

The following table shows the requisites in the format of the FS-structure provided in the CEFIC guidance. The expectations towards the general content of the sections are described in the above sections.

The first column of the table includes the section headings according to the CEFIC FS structure. The second column lists the information types that should be included in the section as a minimum. The third section includes general advice on how to provide the information. The fourth column includes information on how the information is currently provided in the majority of factsheets as observed in the screening analysis.

After agreeing on the spERC requisites with ECHA, existing best practice examples will replace the information on the status quo in the fourth column.

Table 99: spERC requisites – 1st proposal based on assessment criteria and screening experience

FS Section	Expected types of information	Comment / principles and guidance	Experience from spERC assessment	Examples where aspects are mostly well implemented
Title of spERC	Lifecycle stage Product or article and/or sector information Further necessary information	A fact sheet may relate to more than one ERC which address different substance functions. A factsheet should not refer to different lifecycle stages.	More or less implemented	Most screened FS
SpERC code	Structured code as proposed by CEFIC Title of sub-spERC in line with ENES; normally the 3rd identifier would relate to the differentiation of sub-spERCs, i.e. substance types or properties	Sub-spERCs should have the same set of OCs and RMMs. If OCs or RMMs differ, separate FS should be developed.	Sub-spERC only sometimes according to substances type / function (volatile / non-volatile); also according to: installation size, indoor or outdoor use, use sector of products	ACEA
Scope	• Substance types / functions / properties included or excluded • Specification of product types covered, if relevant and not already contained in the title • List of processing steps[72]; • Statement if cleaning and maintenance of equipment is covered as well as auxiliary processes, in particular if leading to "opening of closed systems" such as sampling and loading	Ensure information in title and spERC code is not doubled. If sub-spERCs are differentiated by substance types, ensure no doubling with sub-spERC title. Specify the covered products if the product types are general and cover many sub-products, such as for construction chemicals, if these are not "common knowledge".	Frequently information in the title or the use descriptors are spelled out Few spERCs include information on processing steps Substance domain frequently doubles division into sub-spERCs, "typical substances in lubricants", substance properties limiting scope e.g. VP and water solubility Many spERCs relate to installation size.	ACEA (however, also superfluous information) AISE "conversion coating" CEPE (background document) ECMA ETRMA EUROMETAUX IFRA
Related use descriptors	List of applicable UDs (SU, PC or AC, PROC, ERC)	Only include relevant PROCs; do not include PROCs which have lower emissions (and could thus be covered by the RFs) but which do not occur in the process, because that causes confusion on the applicability domain. If PROCs indicating a closed system and/or minimal release are listed, information on the conditions leading to the low release should be included in the description of operational conditions	PROCs always listed, PCs and SU sometimes, ERCs even less frequently. No spERCs exist for service life.	Some spERCs include PROCS which are not relevant, most spERCs are fine
Operational conditions (including information on technical strategies to achieve high raw material	Conditions (for all relevant processing steps) • Degree of containment (open / closed) • Location of use (indoor / outdoor) • Water contact (dry process / water contact possible) • Automation in raw materials handling (manual / automatic dosing) • Continuous or batch processing • Inclusion / No inclusion in matrix • Measures to achieve efficient raw material use (e.g. water re-use,	Ensure OCs explain the processing conditions rather than repeating the PROCs or scope / title Provide information on all items; if not relevant: justify Repeat OCs from ERC as these cannot be presupposed as known to the users Check where to put information in relation to section on RMMs: e.g. waste gas collection systems should be assigned to the RMM if they are connected to waste gas treatment[73] Point out how OCs are linked to the emission pathways. In relation to RFs of "zero": ensure that OCs are provided that exclude emissions to the	There is no spERC which has complete and specific descriptions of OCs. Most OCs are very generic (only the first list, if at all) so that it is normally not possible to envisage the process or estimate where emissions could occur and to which extent. OCs frequently double information from title and scope. Sometimes information is	IFRA

[72] Explanation of the different processing steps could be provided in the background document and/or the narrative description.

[73] According to ECHA, OCs are conditions designed to ensure efficient processing which may also lead to emission reduction. RMMs are measures which are installed solely for the purpose of emission reduction. As waste gas collection systems do not influence the processing efficiency but are installed only to reduce exposures (of workers) and to ensure emissions are effectively transferred to a device destroying them (e.g. waste air incineration) this would be considered as part of the overall RMM

FS Section	Expected types of information	Comment / principles and guidance	Experience from spERC assessment	Examples where aspects are mostly well implemented
efficiency)	recovery of substances from waste etc.) Emission pathways (for all relevant processing steps) • Main emission source to air, soil and water • Conditions preventing emissions to air/water/soil • Sources of waste	respective compartment If RFs are derived from literature, ensure that the OCs underlying the literature values are included here; otherwise justify why this is not the case (e.g. in a background document) Do not mix OCs with background information on how they were derived. If this should be described, create a separate background note or document	contradictory. State of the art can hardly ever be judged as information is too general.	
Obligatory RMMs onsite[74]	RMM to water and air with % efficiency (in relation to substance properties or types, if relevant); if the RMMs are process-integrated and no separate efficiency can be determined, respective explanation. RMM to soil / measures preventing release to the soil with %-efficiency, if relevant. Name of technology/ technologies that could be used and that would achieve the efficiency; in case of process-integrated RMM specification of specific measures assumed in the RFs. Statement that no RMM is included in the RFs and hence no RMM is needed Performance parameters that can be used to check the RMM efficiency Information source on RMM efficiency[75]	Be specific with the RMM recommendations Do not leave room for interpretation: RMMs listed in this section are obligatory and only if they are implemented, the RFs do apply Ensure RMMs are appropriate to the process, emission level and the sector Provide efficiencies of RMMs for the specific substances types, if differences exist, provide explanation if this is not possible (process-integrated measures)	RMM technology frequently not provided, only efficiencies. Many spERCs do not include RMMs at all: due to large scope it is difficult to judge if then the RFs can be applied to all covered uses or not.	ETRMA EUROMETAUX
Substance use rate	Amount of substance use per day If relevant; relation of use rate to typical production situation (e.g. production peaks; exchange of treatment baths : relevant for emissions to water or to waste) Worst case / peak emission scenario, if relevant Justification / information source	Specify if the substance use rate significantly differs over the year, e.g. due to peak production times or discontinuous process steps (e.g. exchange of processing solutions in baths with long operating lives). Include a worst case / peak scenario in the CSR for this situation. Ensure the use rate is realistic, in particular for consumer and professional uses.	Mostly provided, if so frequently with justification "based on sector knowledge"	Various FS, not under detailed assessment AISE "wdu cleaning"
Days emitting	Number of emission days per year If relevant; relation of emission days to typical emission situation (e.g. routine use of baths and situations where these are exchanged; maintenance and cleaning if resulting in peak emissions) Justification / information source	Relevant, if no annual use amount provided; calculation of daily amount from annual amount and emission days is only acceptable in case of continuous processing. If peaks occur in the production this must be taken into account.	Always provided, frequently with justification "based on sector knowledge"; value of 220 frequently given	Various FS, not under detailed assessment
RF air, water	Numeric value / percent of input amount	Provide a concise, transparent and comprehensive justification of release factors, preferably in a separate background document (c.f. Section 1.3).	RFs normally provided	Various FS
RF soil	Numeric value / percent of input amount	Although soil emissions may not be relevant for local assessments of point sources, they are needed for regional assessments. If the value of the RF to soil is "0", the OCs should explicitly mention how release is prevented, in particular for outdoor uses.	RFs either "0" or not provided at all. If "0" insufficient justification or description of OCs don't explicitly mention, how releases are prevent.	--
RF waste	Two numeric values / percentages of input amount	Provide the share of the substance input which is collected by RMMs and disposed of as	Only rarely provided; not differentiated	--

[74] If RMMs are specified in this section, it is implied that they are considered in the RFs; i.e. the RF values integrate the efficiency of RMMs.

[75] This information would be particularly relevant in case of very high efficiencies: here, the registrant could add information on the realism of achieving this efficiency in the actual installations.

FS Section	Expected types of information	Comment / principles and guidance	Experience from spERC assessment	Examples where aspects are mostly well implemented
RMM; RF waste "other"	• From RMMs and • From other sources	waste separately from The share of the substance input which becomes waste from other sources, including amounts from packaging, processing waste which is not reused / recycled and waste from RMMs, such as air filters.	according to sources, different understanding of what is included in RF waste.	
Justification of RFs from published literature[76]	Summary of RF justification(s) with reference to more detail in the background document, if relevant / existing: • Name of source, page number, reference to table, if relevant; • Reasoning for modifying values The following information should rather be placed in the background document than in the spERC factsheet: Identification of OC and RMM in literature source and listing; comparison with OC and RMM in spERC, discussion why OCs / RMMs in spERC lead to the same / less releases as conditions in literature source (for the same or different PC/application technique/sector).	Ensure that the value can be found by evaluators. Ensure that information on OCs correspond; if not: provide arguments why values apply (e.g. spERC conditions are stricter). Provide information as separate note at the end of the FS or as additional document	Usually only ESD is quoted, no page or table numbers; some values cannot be traced. No discussion of CoU identified in any of the spERCs where RF are based on literature Paint and lacquer ESD extrapolated to adhesives and construction chemicals; reason: "conditions of use are similar"	No good examples, except AISE wdu
Justification of RFs qualitative arguments[77]	Summary of RF justification(s) with reference to more detail in the background document, if relevant / existing • List of conditions determining release along the processing steps • Substance domain / limitation of substance properties determining release (e.g. VP) • Other relevant conditions that determine the release If further explanation is useful or needed, it should be placed in the background document.	Use qualitative argumentation to justify "zero emission"; this is preferable to quoting literature values of "0" Refer to the emission sources along the processing chain described in the section on operational conditions and state why they are insignificant; this is more convincing than a general statement of insignificance of emissions. Also refer to RMMs to justify the RFs. Do not forget addressing cleaning and maintenance processes as well as other processes where breakage of the containment is expected (e.g. (un)loading, sampling etc.). Ensure consistency with substance domain / properties	Most frequent argumentation is "dry process" for "zero" emission to water and "not relevant" for RF to soil. Sometimes not consistent with PROCs. Usually only very short argumentations.	IFRA (RF to soil)
Justification of RFs industry data[76]	Summary of RF justification(s) with reference to more detail in the background document, if relevant / existing • Survey year, number of participating companies, • OCs and RMMs implemented during survey conditions, • representativeness of answers The following information should rather be placed in the background document than in the spERC factsheet: Data evaluation and exclusion of answers / values, description of final database for RF derivation Description of calculation method of RFs including assumptions and	Survey description should be concise but sufficiently detailed to understand how the data for RF derivation was collected. The RF calculation method should be transparent and assumptions explained. If possible, identify which parameters most influence the RF; this may be relevant for extrapolating the values Provide the information in a separate document or as separate note at the end of the FS rather than in the main FS table.	Description of surveys usually either only very short / missing or not sufficient to understand how RF base data was obtained.	ACEA (but insufficient documentation of base data) ECMA (but insufficient documentation of base data) ETRMA

[76] Justification of RFs from published literature is separated from justification of RFs from industry data. The former covers information sources which include derived release factors which are quoted in the factsheet. The information is published and can hence be accessed. The data collection may already be some time ago and may not be conducted for the purpose of REACH chemical safety assessment. This mainly concerns the OECD ESDs as well as the EU risk assessment reports. The justification based on "industry data" covers cases, where associations conducted surveys and derived release factors but not necessarily published the survey results. Therefore, the information basis is newer and the information collection usually was targeted to fulfilling REACH CSR requirements.

[77] Qualitative argumentation should as much as possible refer to information in the sections scope, operational conditions, obligatory RMMs and possibly also the narrative description. The idea of this type of information is to make the relation between the conditions of use and the release factors explicit in order to justify the size of the RFs.

FS Section	Expected types of information	Comment / principles and guidance	Experience from spERC assessment	Examples where aspects are mostly well implemented
	limitations Description of =OCs/RMMs under which RFs were identified and relation to spERC CoU. Description of applicability domain of RFs in relation to substances and uses, statistical analysis on the representativeness of the raw data, information requested and data collection method in the companies			
Optional RMMs	As for obligatory RMM	Information on additional RMMs are a support for registrants iterating their assessment, if safe use cannot be demonstrated using the core spERC information.	In many FS optional RMMs are provided but no obligatory ones. Information quality varies.	Not relevant
Narrative description	Process flow-chart, list of processing steps; information on variations of OCs covered, how RMMs are operated Waste disposal options	Narrative is included in the CSR; ensure consistent and complete information on the process consistent with the FS. Do not include justifications or background data in the narrative Include best practice information, if known.	Many narratives often confusing, inconsistent of contradicting information to FS.	CEPE (background document)
Scaling	Scaling equation and parameters that can be scaled	No guidance regarding the content of this section for evaluation purposes. The factsheet should however provide understandable guidance to the downstream users.	Scaling was not analysed in the screening assessment	Not under assessment
Appendix	C.f. requirements from CHESAR In principle all FS information should be included in the CSR	Ensure consistency with the FS	Appendices frequently inconsistent	Not relevant

1.3 Background documentation

As the spERC evaluators as well as the registrants normally are no experts in the sectors, it would be useful if spERC developers would prepare a short background document to their factsheet[78]. This would ensure that information is provided in a consistent and understandable way and can be easily accessed.

The background document could contain the following information:

- Brief explanation of the sector to give the evaluators and registrants an overview of the main applications and the industry structure
- Background information on products used
- General description of the processes for which spERCs exist including a general description of main emission points and how OCs and RMMs influence the extent of releases
- Information on the state-of-the-art on RMMs, if relevant
- Specification of undefined determinants, such as “efficient raw materials use” or “large/medium/small installation” specifying technical strategies or RMMs
- Justification of release factors
    - Overall background information, e.g. where the same base data is used from surveys or the same OECD ESD is quoted
    - if industry data is used a description of the data collection and processing methods, as well as the method for deriving release factors
    - if literature values are used, an assessment of OCs and RMMs prescribed in the spERC and contained in the respective literature source
    - if qualitative information is use, any additional information supporting the assumptions made in logical justification of RFs.

This should result in lean factsheets that contain only the necessary information for the emission estimation. The FS-content could then be transferred 1:1 to the CHESAR tool, avoiding all possibilities between the factsheet and the automatically generated CSRs.

1.4 Further process regarding the spERC requisites

The following steps are envisaged to agree on the spERC requisites and develop a “checklist” for industry and evaluators:

- Discussion of requisites at kick-off meeting
- Written comments by ECHA on requisites
- Revision of first draft spERC requisites
- Sending of first draft requisites to industry associations which participate in the second project phase

[78] The background document should provide additional explanation and information on the RF justification; the essential information of the spERC should be contained in the factsheet.

- Discussion of requisites at the initial meeting with the industry associations participating in the second project phase
- Collection of opinions and written comments
- Discussion of changes with ECHA, if significant; second revision of spERC requisites
- Use of spERC requisites in Phase 2; collection of feedback on usefulness and potential improvement needs
- Revision of spERC requisites after Phase 2 and inclusion in the final report.