

## SpERC Quality Evaluation

ASSESSOR IDENTIFICATION	
Name of the assessor	D.A. Morgott, Pennsport Consulting, LLC
Contact details	Email: dmorgott@verizon.net; Phone: 011 585 261 6488
Documents evaluated	Factsheet and background document for: ESVOC SpERC 2.2.v3 Formulation
Date of the evaluation	October 5, 2023

### 1 – TITLE

#### **1.1 Is the SPERCs title simple, concise, unambiguous, understandable?**

The title of the SPERC is important to facilitate the selection of the most appropriate SPERC to be used to estimate environmental emissions when running a chemicals safety assessment.

EVALUATION	ACCEPTABLE
Explanation of evaluation	The usage of this SpERC is clearly evident from the title.
Remarks on improvements	There could be some benefit to defining the SpERC code assignments.

### 2 –SCOPE

#### **2.1 Is the scope of the SPERC clear, verifiable and consistent with underlying ERCs?**

Is the scope of the SPERC (in factsheet and background document) clear and verifiable for a user in terms of i) process-types, ii) product-types, and iii) substance properties covered?  
Are the boundaries of the scope sufficiently clear and explicit, indicating what is not covered, for example where misunderstanding may arise, or where the SPERC developer has chosen not to cover a particular use situation because it is exceptional for the sector. For example, where SpERCs relate to the scale of operation or the volatility of substances, quantitative benchmarks should be provided.

(\* ) The use-map developer needs to build use names and names for the contributing activities that i) correctly match the scope of the applicable SPERC and ii) are easily verifiable for the companies receiving exposure scenarios.

EVALUATION	GOOD
Explanation of evaluation	In general, the scope of the SPERC has been sufficiently described. There is little ambiguity in the descriptive details and the documentation is clear and concise.
Remarks on improvements	No further action required.

**2.2 Is the scope described as substance and/or process domain consistent with the OC/RMM identified as driving the release?**

The Scope section is to understand the relationship between substance type, product and process, including RMMs/abatement techniques, on the one hand and the environmental release on the other hand. Does this relationship becomes adequately clear and transparent?

For example:

- If SPERC refers to products and processes where no water is involved, absence of water contact should be made explicit in the conditions of use, and it should be made clear whether this refers to the process as such or also to cleaning operations (equipment cleaning, floor cleaning). Hence, the process domain should hint towards the relevant sections in the process (i.e. conditions of use). The scope of the SPERC is driven in this case by the process domain and to a lesser extent by the substance domain;
- If a SPERC refers to volatile substances that are used as process aids leading mainly to emissions to air, the combination of substance and process domain will equally describe the scope of the SPERC. Certain substances (e.g. defined by a boiling point threshold) will be prone to air emissions as specified within the process domain (closed or open processes). Further conditions affecting the release into the environment is given in the CoU and is not part of the scope section.

EVALUATION	GOOD
Explanation of evaluation	A substantial amount of information is provided that clearly delineates the relationship between the substance domain and the relevant conditions of use.
Remarks on improvements	No additional action needs to be taken.

**3 – OPERATIONAL CONDITIONS**

**3.1 Are the OCs clearly described and practically verifiable?**

Together with the substance properties, the operational conditions determine the initial release of substances from the use-process. For example, elevated temperature (temperature benchmark needed) and abrasive processes usually increase the release of a substance to air, water contact during the process (water based process steps) or during cleaning (equipment or room cleaning) drives the presence of the substance in waste water. For the mentioned examples, it should be possible to communicate the operational conditions in a clear and verifiable way. However, it is not always possible in a generic SPERC (or in the resulting exposure scenario) to describe and communicate the (complex) operational conditions in the industrial processes of a sector driving the initial releases of the substance into exhaust air, waste water -or residue streams. In such cases, the SPERC best makes reference to a documented best/good practice or a Best Available Technique (BAT), provided such sector “standard” can be connected to (substance related) release factors. For example, generic phrases in SPERCs factsheet such as “high degree of automation” or “efficient use of raw materials” should be referenced (or exemplified) to what this means in practice in the background document.

EVALUATION	GOOD
------------	------

Explanation of evaluation	The operational conditions and applicable removal efficiencies have been well described, appropriately anchored to the applicable release compartment, and suitably referenced.
Remarks on improvements	No need for additional information.

**3.2 Do the OCs properly reflect the main drivers for release potential of substances into the environment?**

Note - On this purpose, operational conditions mentioned shall be linked to the environmental releases covered by the SPERC. For example, if release to water is set to 0, CoU should reflect that cleaning operation needs to be performed without water and no water used in process or water is completely recycled and water containing residues (from cleaning the water-cycle) are disposed of as waste.

EVALUATION	GOOD
Explanation of evaluation	The linkage between the operational conditions and the release compartments is well established and clearly described.
Remarks on improvements	No need for additional information.

**3.3 If a use rate has been provided: Is it transparent, how the use rate has been derived and how representative it is?**

Note: a use rate is generally site specific and cannot be provided as definite by a SPERC. Therefore, in general, SPERCs may provide indicative use rates that are based on conservative assumptions (i.e. high end of daily use rates) from industry use data. These use-rates are meant to serve as a starting point or benchmark for the registrant's assessment. It is for example important to explain, whether the indicative value is based on statistical figures on daily consumption of chemicals at single sites, or whether the indicative value is extrapolated from an annual market/sector tonnage, distributed over a number of users and/or a number of use-days. In this respect it may also play a role whether the activity is carried out as i) small scale operation and ii) large scale operation, and or under optimal or suboptimal conditions and thus whether several SPERCs may be needed (with a corresponding indicative use-rate), e.g. one with onsite emission controls and the other without onsite emission controls. For uses where process waters are retained and environmental releases potentially occur discontinuously, it need to be transparently explained to what use rate the SpERC emission factors are applicable. For example, the emission factors of such a SPERC can be a reflection of the continuous flow-through situation (with daily compensation of losses) and/or a situation where the whole bath is exchanged (and fractions of it are released on a day).

EVALUATION	ACCEPTABLE
Explanation of evaluation	A reasonable quantitative argument has been provided in the background document for the use rates stated in the factsheets. The information has been presented as purported values that may be modified if more realistic information is available for the substance under evaluation.
Remarks on improvements	The use rate calculations could be improved upon with the inclusion of additional supporting documentation for the stated shipping rates.

## 4 – RISK MANAGEMENT

### 4.1 Are the RMM described in a clear manner?

Are the RMM (in factsheet and background document) described in a clear manner (required effectiveness and technical possibilities to achieve it), so that a DU or an authority could practically verify whether such techniques or equivalents are in place?

In case RMMs are linked to good/best practices/techniques, have the corresponding references been provided (e.g. BAT, BREF documents)? Note, that a link to good/best practices may subsume an array of alternative techniques that lead to similar results of emission reduction.

EVALUATION	GOOD
Explanation of evaluation	The optional RMMs have been well delineated and appropriately sourced to a Best Available Technology (BAT) report.
Remarks on improvements	No additional information required.

### 4.2 Are RMMs adequate for the substance/product domain?

Is it plausible that the reported RMMs are effective to substances within the described domain and /or to the product types within the scope of the SPERC? Is this linkage adequately described in the background document? For example, mechanical oil/water separation may not effectively work where emulsions occur.

EVALUATION	GOOD
Explanation of evaluation	The applicability and potential limitations of the optional RMMs have been well outlined in the background document. Specific information is provided concerning each RMM and those factors affecting its effectiveness.
Remarks on improvements	No need for additional information.

### 4.3 Are RMMs clearly linked to release sources?

Are the main sources/pathways of release from the process described in the background document, and is it clear to which of these the RMM refer? For complex air treatment systems (e.g. wet scrubbing), is it sufficiently clear, on which pathway and at which rate the substances removed from air leaves the site (for example via waste-water or waste)?

In case alternative RMMs can be applied to achieve similar end-of-pipe effectiveness, are concrete examples/options provided? Note, that good/best practices may subsume an array of alternative techniques that lead to similar results of emission reduction.

EVALUATION	ACCEPTABLE
Explanation of evaluation	There is no direct linkage between the list of optional air treatment technologies and specific emission sources; however, the wastewater treatment requirements are clearly linked to the water releases.
Remarks on improvements	Some minor improvements can made to align specific RMMs with an applicable emission source.

## 5 – RELEASE FACTORS

### 5.1a MEASURED DATA - Are measured data representative and well documented?

In case a set of measured data for the process/products covered in the SPERC, and taken under the conditions of use as described in the SPERC, is the number of data points, the number of companies and the substances analysed documented or referenced? Are measured data related to reasonable and documented use rates in order to derive representative release factors? Where available, provide a data analysis (e.g. distribution %ile) to identify representativeness of the data for the respective purpose (e.g. determination of release rate).

EVALUATION	GOOD
Explanation of evaluation	Relevant measurements from field studies, laboratory experiments, and/or company surveys are well explained and sourced.
Remarks on improvements	No need for additional information.

### 5.1b MODELLED DATA - Is the documentation on the model and the modelling report available?

In case release factors are determined based on a model developed for the processes and products covered in the SPERC, is the documentation of the model and a modelling report available? Are modelled releases related to representative use rates in order to derive reasonable release factors?

EVALUATION	Not applicable
Explanation of evaluation	These issues do not apply to this SpERC.
Remarks on improvements	No action required.

### 5.1c LITERATURE DATA - Is the literature source provided and assessed to be representative/robust?

In case the release factors are extracted from published literature referring to the process/products and conditions of use covered in the SPERC, is the literature referenced and is a short summary provided in the background document? Is the number of data points, the number of companies, the conditions of use and the substances analysed clearly documented in the publication? Are the conditions of use referred to in the publication consistent with the conditions identified in the SPERC.

EVALUATION	GOOD
Explanation of evaluation	An extensive and highly detailed list of scientific papers, technical reports, and government publications has been used to justify much of the information contained in the factsheet and background document.
Remarks on improvements	No need for additional information.

### 5.1d READ-ACROSS DATA – Is the read-across sufficiently robust and well explained?

In case of read-across from any of the type of sources above (to other processes, other products, other conditions of use), is the read-across sufficiently explained, for example by comparing the processes, the release driving factors and the properties of the chemicals involved. For example, releases to water from any kind of formulation processes will have very similar drivers, independent of the concrete product category: It will depend on i) dustiness or viscosity of the chemicals to be mixed, ii) whether cleaning of machinery is carried out with water, iii) whether the equipment is run continuously or in batch-mode with intermediate cleaning and iv) which techniques are used to minimise the residues in the equipment before cleaning. Thus read-across from formulation of one product category to another one may be straight forward.

EVALUATION	Not applicable
Explanation of evaluation	Read-across from other SpERC-related industrial usages has not been performed.
Remarks on improvements	No action required.

## 6 – CONSERVATISM

### 6.1 – Is the level of conservatism appropriate?

Does the scope of the SPERC cover sufficiently all uses described by the CoU and RMMs? Is the level of conservatism, i.e. the conservative derivation of release factors, etc., sufficiently described in the background document? Is the level of conservatism balanced compared to the scope? (i.e. broader scope requires more conservatism and vice versa). Conservatism can result from different aspects, e.g. from the mathematical analysis of data (e.g. taking a 90%ile, summing up from individuals to a category, etc.), the read across from different processes and/or a worst case approach, where assumptions were taken from the process with the worst emission aspects.

EVALUATION	GOOD
Explanation of evaluation	When necessary, an adjustment factor has been applied to some factors to ensure that all types of operations are captured by the assigned value.
Remarks on improvements	No need for additional action.

## 7 – SUMMARY and OVERALL JUDGEMENT

### 7.1 - Overall judgement of the reviewer

Based on the documented information, are the release factors considered representative and reliable for the conditions of use described in the SPERC and the type of substances (by chemical-physical properties) contained in products/processes covered by the SPERC?

<b>Overall score</b>	Assign a score
----------------------	----------------

<b>Title</b>	<b>Scope</b>	<b>OCs</b>	<b>RMMs</b>	<b>RELEASE FACTORS</b>	<b>CONSERVATISM</b>
ACCEPTABLE	GOOD	GOOD	GOOD	Not applicable	GOOD

Overall evaluation	The information provided in the factsheet and background document for this SpERC is well focused, satisfactorily explained, and suitably sourced.
Overall remarks on improvements	Although there are several areas for improvement, the changes are minor and do not affect the overall reliability of the attendant information.