

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
1. Title	1.1 Title of SPERC	Use as a processing aid and/or an extraction solvent	Y	Y
	1.2 SPERC code	ESVOC SPERC 4.1.v2	Y	Y
2. Scope	<b>2.1 Substance/Product Domain</b>			
	Substance types / functions / properties included or excluded	Applicable to petroleum substances and petrochemicals.	Y	N
	Additional specification of product types covered:	Includes a variety of aliphatic and aromatic hydrocarbons, ketones, alcohols, acetates, glycols, glycol ethers, and glycol ether acetates.	Y	N
	Inclusion of sub-SPERCs	Yes	N	N
	<b>2.2 Process domain</b>			
	Description of activities/processes:	Use of a substance as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.	Y	Y
	<b>2.3 List of applicable Use Descriptors</b>			
	LCS	IS – Use at industrial sites	Y	Y
	SU	SU8 - Manufacture of fine chemicals	Y	Y
	PC	PC40 – Extraction agents	Y	Y
3. Operational conditions	<b>3.1 Conditions of use</b>			
	Location of use	Indoor	Y	Y
	Water contact during use	Yes	Y	Y
	Connected to a standard municipal biological STP	Yes	Y	Y
	Rigorously contained system with minimisation of release to the environment	No	Y	N
	Further operational conditions impacting on releases to the environment	Volatile compounds subject to air emission controls. Wastewater emissions generated from equipment cleaning with water.	Y	Y
	<b>3.2 Waste Handling and Disposal</b>			
	Waste Handling and Disposal:	Residual raw materials and are in some cases recycled and fed back into the process reactor to improve efficiencies. In other cases, residues and by-products are used as raw materials for other downstream applications (EU, 2016). Wastewater generated during cleaning and maintenance operations is directed to a waste water treatment plant for biological degradation. Atmospheric release of waste vapor may be ameliorated using wet scrubbers, thermal oxidizers, solid adsorbents, membrane separators, biofilters, and/or cold oxidizers for trapping residual vapours.	Y	N

<sup>1</sup> Explanations that are more detailed can be provided for the CSR..

<sup>2</sup> For the ES for communication a standard phrase may be selected from the ECom catalogue when available. When no phrase is available yet in the catalogue the proposed phrase can be reported here.

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		All unrecovered waste is handled as an industrial waste that can be incinerated or in some cases re-distilled. EU (2016). Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. Report EUR 28112 EN. European IPPC Bureau. Seville, Spain. <a href="http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf">http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf</a>		
4. Obligatory RMMs onsite	RMM limiting release to air:	No obligatory RMMs.	Y	Y
	RMM Efficiency (air):	Optional RMMs have been assigned a nominal removal efficiency value that is not accounted for in the air release factor. See the background document for more information.	Y	Y
	Reference for RMM Efficiency (air):	EU (2016). Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. Report EUR 28112 EN. European IPPC Bureau. Seville, Spain. <a href="http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf">http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf</a>	Y	N
	RMM limiting release to water:	Oil-water separation (e.g. via oil water separators, oil skimmers, or dissolved air flotation) is required.	Y	Y
	RMM Efficiency (water):	The efficiency of this RMM varies dependent on the treatment technology and the properties of the substance.	Y	Y
	Reference for RMM Efficiency (water):	EU (2016). Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector. Report EUR 28112 EN. European IPPC Bureau. Seville, Spain. <a href="http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf">http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf</a>	Y	N
	RMM limiting release to soil:	The sludge generated from wastewater treatment is not applied to agricultural soil.	Y	Y
	RMM Efficiency (soil):	Not applicable	Y	Y
	Reference for RMM Efficiency (soil):	ECHA (2016). <i>Guidance on Information Requirements and Chemical Safety Assessment. Chapter R.16: Environmental Exposure Assessment</i> Version 3.0. European Chemicals Agency. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N
5. Exposure Assessment Input	<b>5.1 Substance use rate</b>			
	Amount of substance use per day:	50,000 kg/day (NB value modified)	Y	Y
	Fraction of EU tonnage used in region:	100%	Y	N
	Fraction of Regional tonnage used locally:	100%	Y	N
	Justification / information source:	ECHA (2016). <i>Guidance on Information Requirements and Chemical Safety Assessment. Chapter R.16: Environmental Exposure Assessment</i> Version 3.0. European Chemicals Agency. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N
	<b>5.2 Days emitting</b>			
	Number of emission days per year:	300 (default value)	Y	Y
	Justification / information source:	ECHA, 2016. <i>Guidance on Information Requirements and Chemical Safety Assessment. Chapter R.16: Environmental Exposure Assessment</i> Version 3.0. European Chemicals Agency. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N

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	<b>5.3 Release factors</b>			
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.a.v2 VP >10000 Pa; WS <1 mg/l	Y	N
	ERC	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure >10000 Pa Water solubility <1 mg/l	Y	N
	<b>5.3.1 Release Factor – air</b>			
	<b>Numeric value / percent of input amount (Air)</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
	<b>5.3.2 Release Factor – water</b>			
	<b>Numeric value / percent of input amount (Water):</b>	0.001%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
	<b>5.3.3 Release Factor – soil</b>			
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N

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	<b>sub-SPERC identifier:</b>	ESVOC 4.1.b.v2 VP >10000 Pa; WS 1-10 mg/l	Y	N
	ERC:	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure >10000 Pa Water solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.003%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.c.v2 VP >10000 Pa; WS 10-100 mg/l	Y	N

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	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	5.0%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.03%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	sub-SPERC identifier:	ESVOC 4.1.d.v2 VP >10000 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 4		

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water Solubility 100-1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	5.0%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.3%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	sub-SPERC identifier:	ESVOC 4.1.e.v2 VP >10000 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water Solubility >1000 mg/l	Y	N

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	<b>5.3.1 Release Factor – air</b>			
	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
	<b>5.3.2 Release Factor – water</b>			
	<b>Numeric value / percent of input amount (Water):</b>	1.0%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
	<b>5.3.3 Release Factor – soil</b>			
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.f.v2</b> <b>VP 1000-10000 Pa; WS &lt;1 mg/l</b>	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1000-10000 Pa Water Solubility <1 mg/l	Y	N
	<b>5.3.1 Release Factor – air</b>			

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	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.001%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.g.v2 VP 1000-10000 Pa; WS 1-10 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1000-10000 Pa Water Solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y



FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.003%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	sub-SPERC identifier:	ESVOC 4.1.h.v2 VP 1000-10000 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	5.0%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )		
	<b>5.3.2 Release Factor – water</b>			
	<b>Numeric value / percent of input amount (Water):</b>	0.03%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
	<b>5.3.3 Release Factor – soil</b>			
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.i.v2 VP 1000-10000 Pa; WS 100-1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1000-10000 Pa Water Solubility 100-1000 mg/l	Y	N
	<b>5.3.1 Release Factor – air</b>			
	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>		
	<b>5.3.2 Release Factor – water</b>			
	<b>Numeric value / percent of input amount (Water):</b>	0.3%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
	<b>5.3.3 Release Factor – soil</b>			
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.j.v2 VP 1000-10000 Pa; WS >1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1000-10000 Pa Water Solubility >1000 mg/l	Y	N
	<b>5.3.1 Release Factor – air</b>			
	<b>Numeric value / percent of input amount (Air):</b>	5.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2,	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )		
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	1.0%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.k.v2 VP 100-1000 Pa; WS <1 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 100-1000 Pa Water Solubility <1 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	1.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.001%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.1.v2 VP 100-1000 Pa; WS 1-10 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 100-1000 Pa Water Solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	1.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	<b>Numeric value / percent of input amount (Water):</b>	0.003%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirement_s_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.m.v2 VP 100-1000 Pa; WS 10-100 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 100-1000 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	1.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1. Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.03%	Y	Y

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.n.v2 VP 100-1000 Pa; WS 100-1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 100-1000 Pa Water Solubility 100-1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	1.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.3%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )		
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.o.v2 VP 100-1000 Pa; WS >1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 100-1000 Pa Water Solubility >1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	1.0%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	1.0%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water	Y	N



FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )		
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.p.v2 VP 10-100 Pa; WS <1 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 10-100 Pa Water Solubility <1 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.1%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.001%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries.	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )		
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.q.v2; VP 10-100 Pa; WS 1-10 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 10-100 Pa Water Solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.1%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.003%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium.	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		<a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>		
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.r.v2 VP 10-100 Pa; WS 10-100 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 10-100 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.1%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1. Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.03%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.s.v2 VP 10-100 Pa; WS 100-1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 10-100 Pa Water Solubility 100-1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.1%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.3%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.t.v2</b> <b>VP 10-100 Pa; WS &gt;1000 mg/l</b>	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 10-100 Pa Water Solubility >1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.1%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	1.0%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )	Y	N
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.u.v2 VP 1-10 Pa; WS <1 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1-10 Pa Water Solubility <1 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.01%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1. Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.001%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% (NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		(ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a> )		
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. ( <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a> )	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.v.v2</b> <b>VP 1-10 Pa; WS 1--10 mg/l</b>	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1-10 Pa Water Solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.01%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. ( <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a> )	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.003%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. ( <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a> )	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.w.v2 VP 1-10 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure 1-10 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	0.01%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.03%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N



FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.x.v2</b> <b>VP 1-10 Pa; WS 100-1000 mg/l</b>	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1-10 Pa Water Solubility 100-1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.01%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.3%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.y.v2 VP 1-10 Pa; WS >1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure 1-10 Pa Water Solubility >1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.01%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tqdp2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	1.0%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.z.v2</b> <b>VP &lt;1 Pa; WS &lt;1 mg/l</b>	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure <1 Pa Water Solubility <1 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	0.001%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	<b>ESVOC 4.1.aa.v2</b> <b>VP &lt;1 Pa; WS 1–10 mg/l</b>	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure <1 Pa Water Solubility 1-10 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	0.001%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	0.003%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4.1.bb.v2 VP <1 Pa; WS 10-100 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure <1 Pa Water Solubility 10-100 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	<b>Numeric value / percent of input amount (Air):</b>	0.001%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	<b>Numeric value / percent of input amount (Water):</b>	0.03%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1).	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	<b>sub-SPERC identifier:</b>	ESVOC 4:1.cc.v2 VP <1 Pa; WS 100-1000 mg/l	Y	N
	<b>ERC</b>	ERC 4		
	<b>sub-SPERC applicability:</b>	Vapour pressure <1 Pa Water Solubility 100-1000 mg/l	Y	N
	<b>5.3.1 Release Factor – air</b>			
	<b>Numeric value / percent of input amount (Air):</b>	0.001%	Y	Y
	<b>Justification of RFs (Air):</b>	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
	<b>5.3.2 Release Factor – water</b>			
	<b>Numeric value / percent of input amount (Water):</b>	0.3%	Y	Y
	<b>Justification of RFs (Water):</b>	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
	<b>5.3.3 Release Factor – soil</b>			
	<b>Numeric value / percent of input amount (Soil):</b>	0.01% <b>(NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)</b>	Y	Y
	<b>Justification of RFs (Soil):</b>	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland.	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
		<a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>		
<b>5.3.4 Release Factor – waste</b>				
	Percent of input amount disposed as waste:	5.0%	Y	N
	Justification of RFs:	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
	sub-SPERC identifier:	ESVOC 4.1.dd.v2 VP <1 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 4		
	sub-SPERC applicability:	Vapour pressure <1 Pa Water Solubility >1000 mg/l	Y	N
<b>5.3.1 Release Factor – air</b>				
	Numeric value / percent of input amount (Air):	0.001%	Y	Y
	Justification of RFs (Air):	This value has been adopted from a published source that documents the worst-case estimates of air emissions based on the expert judgement of environmental scientists from the Dutch National Institute for Public Health and the Environment (RIVM). European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A1.1, Brussels, Belgium. <a href="https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf">https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf</a>	Y	N
<b>5.3.2 Release Factor – water</b>				
	Numeric value / percent of input amount (Water):	1.0%	Y	Y
	Justification of RFs (Water):	The approach used to assign this value is largely qualitative in nature and takes into consideration both the physical properties of the substance and the magnitude of wastewater production at representative production sites. This release factor has been conservatively calculated using water solubility information together with survey results of wastewater effluent volume per tonne of capacity at European oil refineries. CONCAWE (2012). Trends in oil discharged with aqueous effluents from oil refineries in Europe. Report No. 6/12. Brussels, Belgium. <a href="https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf">https://www.concawe.eu/wp-content/uploads/2017/01/report-no-6_12.pdf</a>	Y	N
<b>5.3.3 Release Factor – soil</b>				
	Numeric value / percent of input amount (Soil):	0.01% (NB Can this value be changed to 5% to be consistent with the ERC 4 designation cited above?)	Y	Y
	Justification of RFs (Soil):	The value has been adopted from an authoritative literature source that documents the release factors for each environmental release category (ERC). The preceding value corresponds to the default release factor for substance manufacturing (ERC 1). ECHA (2016). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.16: Environmental exposure assessment Version 3.0. Appendix A.16-1. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf">https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf</a>	Y	N

FS Section	Content field	Explanation of content	CSR <sup>1</sup>	eSDS <sup>2</sup>
	<b>5.3.4 Release Factor – waste</b>			
	<b>Percent of input amount disposed as waste:</b>	5.0%	Y	N
	<b>Justification of RFs:</b>	The value has been adopted from an authoritative literature source that documents the release factors for hazardous wastes generated in an industrial setting. The preceding value corresponds to the default release factor for the use of solvents in a manufacturing process. ECHA (2012). Guidance on Information Requirements and Chemical Safety Assessment Chapter R.18: Exposure scenario building and environmental release estimation for the waste life stage Version 2.1. Appendix R.18-4. Helsinki, Finland. <a href="https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf">https://echa.europa.eu/documents/10162/13632/r18_v2_final_en.pdf</a>	Y	N
<b>References to SPERC Background Document</b>				
	<b>Reference to Background Document</b>	ESIG/ESVOC (2018). SpERC Background Document (1 <sup>st</sup> draft). Specific Environmental Release Categories (SpERCs) for the industrial use of solvents and solvent borne substances as processing aids, lubricants, and functional fluids. European Solvents Industry Group. Brussels, Belgium.	Y	N