FS Section	Content field	Explanation of content	CSR	eSDS
1. Title	**1.1 Title of SPERC**	Water treatment chemicals (industrial): solvent-borne	Y	Y
	1.2 SPERC code	ESVOC SPERC 3.22a.v4	Y	Y
2. Scope	**2.1 Substance/Product Domain**			
	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	No	N	N
	2.2 Process domain			
	Description of activities/processes:	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.	Y	Y
	2.3 List of applicable Use Descriptors			
	LCS	IS – Use at industrial sites	Y	Y
	SU	SU0 – Other	Y	Y
	PC	PC20 – Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents	Y	Y
3. Operational conditions	**3.1 Conditions of use**			
	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
	3.2 Waste Handling and Disposal			
	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 (EEA, 2016). Wastewater generated during cleaning and maintenance operations is directed to a waste water treatment plant for biological degradation. Atmospheric release of waste vapour may be ameliorated using wet scrubbers, thermal oxidizers, solid adsorbents, membrane separators, biofilters, and/or cold oxidizers for trapping residual vapours. All unrecovered waste is handled as an industrial waste that can be incinerated. 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. http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf EEA (2016). Prevention of hazardous waste in Europe — the status in 2015 European Environment Agency, Report No. 35/2016. Copenhagen, Denmark. https://www.eea.europa.eu/publications/waste-prevention-in-europe/file	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
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. http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf	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. http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf	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). Guidance on Information Requirements and Chemical Safety Assessment. Chapter R.16: Environmental Exposure Assessment Version 3.0. European Chemicals Agency. Helsinki, Finland. https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf	Y	N
5. Exposure Assessment Input	**5.1 Substance use rate**			
	Amount of substance use per day:	100 kg/day	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). Guidance on Information Requirements and Chemical Safety Assessment. Chapter R.16: Environmental Exposure Assessment Version 3.0. European Chemicals Agency. Helsinki, Finland. https://echa.europa.eu/documents/10162/13632/information_requirements_r16_en.pdf	Y	N
	5.2 Days emitting			
	Number of emission days per year:	300 (professional judgement)	Y	Y
	Justification / information source:	CEFIC (2012). Cefic Guidance Specific Environmental Release Categories (SPERCs) Chemical Safety Assessments, Supply Chain Communication and Downstream User Compliance. Revision 2, European Chemical Industry Council, Brussels, Belgium, (http://www.cefic.org/Documents/IndustrySupport/REACH-Implementation/Guidance-and-Tools/SPERCs-Specific-Envirnonmental-Release-Classes.pdf)	Y	N
	5.3 Release factors			
	sub-SPERC identifier:	ESVOC 3.22a.a.v4 VP >10000 Pa; WS <0.001 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility <0.001 mg/l	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	75%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.00003%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.b.v4 VP >10000 Pa; WS 0.001-0.01 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 0.001-0.01 mg/l	Y	N
	5.3.1 Release Factor – air			

FS Section	Content field	Explanation of content	CSR	eSDS
	Numeric value / percent of input amount (Air)	75%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.0001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.c.v4 VP >10000 Pa; WS 0.01-0.1 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 0.01-0.1 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	75%	Y	Y

FS Section	Content field	Explanation of content	CSR	eSDS
	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.d.v4 VP >10000 Pa; WS 0.1-1.0 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 0.1-1.0 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	75%	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	eSDS
		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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)		
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.01%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.e.v4 VP >10000 Pa; WS 1-10 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 1-10 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	75%	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).	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		European Commission (2003). European Commission Technical Guidance Document on Risk Assessment (EUTGD), Report EUR 20418 EN/2, Appendix 1, Table A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)		
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.f.v4 VP >10000 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 10-100 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	75%	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,	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Appendix 1, Table A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)		
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.g.v4 VP >10000 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility 100-1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	10%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.h.v4 VP >10000 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure >10000 Pa Water solubility >1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			

FS Section	Content field	Explanation of content	CSR	eSDS
	Numeric value / percent of input amount (Water):	33%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.i.v4 VP 1000-10000 Pa; WS <0.001 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility <0.001 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.00003%	Y	Y

FS Section	Content field	Explanation of content	CSR	eSDS
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.j.v4 VP 1000-10000 Pa; WS 0.001-0.01 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility 0.001-0.01 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.0001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.k.v4 VP 1000-10000 Pa; WS 0.01-0.1 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility 0.01-0.1 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m³/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.l.v4 VP 1000-10000 Pa; WS 0.1-1.0 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility 0.1-1.0 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.01%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		equivalent to a water usage factor of 334 m³/tonne which allowed a release factor to be calculated for each water solubility category. Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.m.v4 VP 1000-10000 Pa; WS 1-10 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa) Water solubility 1-10 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m³/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.n.v4 VP 1000-10000 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility 10-100 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	50%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.o.v4 VP 1000-10000 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility 100-1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	10%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.p.v4 VP 1000-10000 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 1000-10000 Pa Water solubility >1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	33%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.q.v4 VP100-1000 Pa; WS <0.001 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility <0.001 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.00003%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.r.v4 VP 100-1000 Pa; WS 0.001-0.01 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 0.001-0.01 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.0001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.s.v4 VP 100-1000 Pa; WS 0.01-0.1 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 0.01-0.1 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.t.v4 VP 100-1000 Pa; WS 0.1-1.0 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 0.1-1.0 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.01%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.u.v4 VP 100-1000 Pa; WS 1-10 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 1-10 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.v.v4 VP 100-1000 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 10-100 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	10%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.w.v4 VP 100-1000 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa Water solubility 100-1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	5%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	10%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.x.v4 VP 100-1000 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 100-1000 Pa (Low solubility <100 mg/l) Water solubility >1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	33%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.y.v4 VP10-100 Pa; WS <0.001 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility <0.001 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.00003%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.z.v4 VP 10-100 Pa; WS 0.001-0.01 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 0.001-0.01 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.0001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.aa.v4 VP 10-100 Pa; WS 0.01-0.1 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 0.01-0.1 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.bb.v4 VP 10-100 Pa; WS 0.1-1.0 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 0.1-1.0 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.01%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.cc.v4 VP 10-100 Pa; WS 1-10 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 1-10 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.dd.v4 VP 10-100 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 10-100 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.ee.v4 VP 10-100 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility 100-1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	10%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.ff.v4 VP 10-100 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure 10-100 Pa Water solubility >1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	33%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.gg.v4 VP <10 Pa; WS <0.001 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility <0.001 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.00003%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.hh.v4 VP <10 Pa; WS 0.001-0.01 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility 0.001-0.01 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.0001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.ii.v4 VP <10 Pa; WS 0.01-0.1 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility 0.01-0.1 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.001%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.jj.v4 VP <10 Pa; WS 0.1-1.0 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility 0.1-1.0 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.01%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.kk.v4 VP <10 Pa; WS 1-10 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility 1-10 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	0.1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.II.v4 VP <10 Pa; WS 10-100 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility 10-100 mg/l	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	0.1%	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.mm.v4 VP <10 Pa; WS 100-1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa) Water solubility 100-1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	10%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
	sub-SPERC identifier:	ESVOC 3.22a.nn.v4 VP <10 Pa; WS >1000 mg/l	Y	N
	ERC	ERC 3		
	sub-SPERC applicability:	Vapour pressure <10 Pa Water solubility >1000 mg/l	Y	N
	5.3.1 Release Factor – air			
	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 A3.16, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf)	Y	N
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	33%	Y	Y
	Justification of RFs (Water):	The factor was established after identifying the geometric mean for eight water solubility categories and combining this result with the amounts of neutralizing amines added to the make-up water feeding an industrial steam boiler. The water loss from boiler blowdowns at a large complex of fifteen buildings required the addition of 1 pound of water treatment chemicals per 40 gallons of water (Edgerton et al., 1989). This is equivalent to a water usage factor of 334 m^3/tonne which allowed a release factor to be calculated for each water solubility category.	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		Edgerton, S.A., Kenny, D.V., Joseph, D.W., 1989. Determination of amines in indoor air from steam humidification. Environmental Science & Technology 23, 484-488.		
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.0%	Y	Y
	Justification of RFs (Soil):	An examination of the literature failed to identify any instances where neutralizing amines have been released to soil or groundwater. Likewise, there has not been any reported instances of accidental spills or leakages that have resulted in the contamination of nearby soil. USEPA, 1980. Waste and Water Management for Conventional Coal Combustion: Assessment Report-1979; Volume II. Water Management, U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Research Triangle Park, NC.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	0.1%	Y	N
	Justification of RFs:	The waste generation factor was taken from a life cycle assessment for the closed-loop production of office paper from recycled paper feedstock (DEFRA, 2012). The value represents the amount of industrial waste generated during pulp and paper production at a facility in Germany. An uncertainty factor has not been applied to the cited value since the facility is representative of the operations at other facilities using water treatment chemicals. DEFRA (2012). Streamlined LCA of Paper Supply Stream. Department for Environment Food & Rural Affairs. London, United Kingsom. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18956.	Y	N
References to SPERC Background Document				
	Reference to Background Document	ESIG/ESVOC (2023). SpERC Background Document. Specific Environmental Release Categories (SpERCs) for the use of solvents and solvent borne substances in the industrial production and/or use of water treatment chemicals, polymers, mining chemicals, and fuels. European Solvents Industry Group. Brussels, Belgium.	Y	N