FS Section	Content field	Explanation of content	CSR	eSDS
1. Title	**1.1 Title of SPERC**	Agrochemical use (consumer): solvent-borne	Y	Y
	1.2 SPERC code	ESVOC SPERC 8.11b.v3	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:	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.	Y	Y
	2.3 List of applicable Use Descriptors			
	LCS	C – Consumer use	Y	Y
	SU	SU1 – Agriculture, forestry, fishery	Y	Y
	PC	PC8 – Biocidal products	Y	Y
3. Operational conditions	**3.1 Conditions of use**			
	Location of use	Indoor/Outdoor	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 prone to atmospheric release. Wastewater emissions generated from equipment cleaning with water.	Y	Y
	3.2 Waste Handling and Disposal			
	Waste Handling and Disposal:	Although household hazardous waste (HHW) represents a small portion of the total domestic waste produced by consumers, it needs to be separated from normal trash and amassed for special handling. Many regional municipalities have established voluntary procedures for the identification, collection, and disposal of HHW in a safe and efficient manner. Once amassed, the HHW can be transported to collection sites where it is reused, recycled, or incinerated. The handling and disposal of hazardous waste needs to conform with established practices and local/regional regulations in order to minimize environmental release and the potential for ecological harm. Inglezakis, V.J., Moustakas, K. (2015). Household hazardous waste management: A review. Journal of Environmental Management 150, 310-321. doi: 10.1016/j.jenvman.2014.11.021.	Y	N
4. Obligatory RMMs onsite	**RMM limiting release to air:**	No obligatory RMMs.	Y	Y
	RMM Efficiency (air):	Emissions to air are minimized when the product is used in accordance with the manufacturers' instructions and established practices.	Y	Y

FS Section	Content field	Explanation of content	CSR	eSDS
	Reference for RMM Efficiency (air):	BCERF, 1999. Safe Use and Storage of Hazardous Household Products. Cornell University, Program on Breast Cancer and Environmental Risk Factors. Ithaca, NY. https://extensionhealthyhomes.org/Documents/fs22.safeUse.pdf.	Y	N
	RMM limiting release to water:	By default, the release to water is modified after biological treatment at a standard municipal sewage treatment plant (STP) with an effluent flow rate of 2,000 m^3/day. The effluent discharge rate is applicable to a group of 10,000 inhabitants who generate 200 L of wastewater per person.	Y	Y
	RMM Efficiency (water):	The removal efficiency is provided by the SimpleTreat model, which takes into consideration the biodegradability, partitioning behaviour, and volatility of an organic substance. Degradation assumes the operation of an aerobic activated-sludge reactor under steady-state conditions.	Y	Y
	Reference for RMM Efficiency (water):	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
	RMM limiting release to soil:	No obligatory RMMs.	Y	Y
	RMM Efficiency (soil):	Emissions to air are minimized when the product is used in accordance with the manufacturers' instructions and established practices.	Y	Y
	Reference for RMM Efficiency (soil):	BCERF, 1999. Safe Use and Storage of Hazardous Household Products. Cornell University, Program on Breast Cancer and Environmental Risk Factors. Ithaca, NY. https://extensionhealthyhomes.org/Documents/fs22.safeUse.pdf.	Y	N
5. Exposure Assessment Input	**5.1 Substance use rate**			
	Amount of substance use per day:	Supplied by registrant	Y	Y
	Fraction of EU tonnage used in region:	10% (default value)	Y	N
	Fraction of Regional tonnage used locally:	0.05% (default value) **(NB the value of 0.2% in the original factsheet includes the recommended adjustment factor of 4. This correction has not been used in other professional factsheets and has been removed.)**	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:	365 (default value)	Y	Y
	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
	5.3 Release factors			
	sub-SPERC identifier:	ESVOC 8.11b.v3	Y	N
	ERC	ERC 8a ERC 8d		
	sub-SPERC applicability:	None	Y	N
	5.3.1 Release Factor – air			
	Numeric value / percent of input amount (Air)	60%	Y	Y
	Justification of RFs (Air):	The value represents an average of two emission factors published in the EMEP (European Monitoring and Evaluation Programme) emission	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		guidebook covering the consumer use of garden and household pesticides (EEA, 2019). The first tier 1 factor for non-methane VOCs was 865 g/kg of solvent; whereas the second more detailed tier 2 factor was 150 g/kg of product. The second factor was adjusted for VOC content using data from a UK study indicating that the VOC content of water-based and solvent-based consumer insecticide sprays was 40.4% and 74.9%, respectively (Nourian et al., 2021). The average content of 57.6% was used to adjust the tier 2 value upper limit value of 160 g/kg of product to obtain a factor of 285 g/kg of solvent. An average of the upper limit values for the two emission factor determinations yields a value of 60.8%, which was truncated at 60% to obtain a well-sourced and duly precautionary release factor for the consumer use of agrochemical products. EEA (2019). EMEP/EEA air pollutant emission inventory guidebook 2019: Domestic solvent use including fungicides. European Environment Agency, Copenhagen, Denmark. Available from: https://www.eea.europa.eu/ds_resolveuid/UWJOCX5QM2 Nourian A., Abba M. K., Nasr G. G. (2021). Measurements and analysis of non-methane VOC (NMVOC) emissions from major domestic aerosol sprays at "source". Environment International; 146:1-12.		
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	8%	Y	Y
	Justification of RFs (Water):	The value was derived from information contained in a UK survey of 500 households showing that that the amount of pesticide waste from each household was equivalent to 0.097 kg/yr (Slack et al., 2005a). In a separate survey of 400 UK households, the total amount of pesticide used or stored in residences throughout the UK was estimated to be 6,125 tonnes, which is equivalent to of 0.25 kg per household for the 24.5 million households located in the UK (Slack et al., 2005b). These values yield a release factor of 38.8 % which erroneously assumes that all of the pesticide waste is poured down the drain or into a storm sewer. This value has therefore been adjusted based on the results from a UK waste survey which reportedly found that up to 20% of household waste pesticides were directly disposed of down a sink or drain (EC, 2002). This yields a final recommended value of 7.8% that has been rounded upward to 8% as a precaution. Slack R. J., Gronow J. R., Voulvoulis N. (2005a). Household hazardous waste in municipal landfills: contaminants in leachate. Science of the Total Environment; 337: 119-137. Slack R. J., Zerva P., Gronow J. R., Voulvoulis N. (2005b). Assessing quantities and disposal routes for household hazardous products in the United Kingdom. Environmental Science & Technology; 39: 1912-1919. EC (2002). Study on Hazardous Household Waste (HHW) with a Main Emphasis on Hazardous Household Chemicals (HHC). European Commission, DG Environment, Munich, Germany. Available from: http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	17%	Y	Y
	Justification of RFs (Soil):	Although pesticide residues are commonly detected in soil samples, these are generally confined to the active ingredients rather than volatile carriers used in the formulation. Direct consumer use of lawn and garden pesticides will by design result in the volatilization and atmospheric release of the inert carrier. Irreversible absorption of the carrier to soil is expected to occur with some types of home and garden pesticides applied in a specific manner (Oguh et al., 2020). Using a mass balance approach, the water release factor can be calculated as the remainder needed to achieve an overall environmental release of 100%. Summing the air, water, and waste factors of 60%, 8%, and 15% yields a subtotal of 83%. Assuming an overall conservation of mass, the water release factor is predicted to be 17% taking into account the partitioning into the other compartments.	Y	N

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		Oguh, C.E., Okunowo, O.W., Musa, A.D., C.A., P., 2020. Toxicity impact of chemical pesticide (synthetic) on ecosystem-A critical review. East African Scholars Journal of Agriculture and Life Sciences 3, 23-36.		
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	15%	Y	N
	Justification of RFs:	The value was derived from published information on the rate of generation rate of household hazardous waste (HHW) and the sales volume for formulated consumer products containing a volatile solvent. The production of HHW in the US was estimated to of 8.8 kg/person/yr (PSI, 2004). A survey of the sales volume for solvent-containing consumer products in California was 5944 tonnes/day and the total state population that same year was 39 million people (CARB, 2018). A ratio of the annual per capita HHW production rate with the annual per capita sales volume of volatile consumer products yielded a waste release factor of 15%. Since this value considers a large array of consumer products capable of producing a waste fraction that can vary considerably, an uncertainty factor has not been applied. PSI (2004). Paint Product Stewardship: A Background Report for the National Dialogue on Paint Product Stewardship. Product Stewardship Institute. Lowell, MA. https://cdn.ymaws.com/productstewardship.site-ym.com/resource/resmgr/Resources_-_PS-Products/Background_Report_for_the_Na.pdf. CARB (2018). Draft 2013, 2014, and 2015 Consumer & Commercial Product Survey Data Summaries. California Air Resources Board. Sacramento, CA. https://www.arb.ca.gov/consprod/survey/2013-2014-2015-data_release.htm.	Y	N
References to SPERC Background Document				
	Reference to Background Document	ESIG/ESVOC (2023). SpERC Background Document (2nd edition). Specific Environmental Release Categories (SpERCs) for the consumer use of solvents and solvent-borne substances for agrochemical use, de-icing applications, and water treatment chemicals. European Solvents Industry Group. Brussels, Belgium.	Y	N