FS Section	Content field	Explanation of content	CSR	eSDS
1. Title	1.1 Title of SPERC	Polymer processing (professional): solvent-borne	Y	Y
	1.2 SPERC code	ESVOC SPERC 8.21b.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:	Covers the use of small quantities within laboratory settings, including material transfers and equipment cleaning.	Y	Y
	2.3 List of applicable Use Descriptors			
	LCS	PW – Widespread use by professional workers	Y	Y
	SU	SU12 – Manufacture of plastics products, including compounding and conversion	Y	Y
	PC	PC32 – Polymer preparations and compounds	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:	Unused and spent products and solutions should be appropriately labelled and stored for eventual recovery or disposal as hazardous waste. A suitable unbreakable and closable container should be used when storing and shipping hazardous materials. The containers must be solvent compatible, leakproof, and free of any defects. Contaminated debris such as disposable paper towels, brushes, rollers, masks, transfer vessels, and wipes that may contain small amounts of solvent residue need to be handled as hazardous waste and properly disposed of in a manner that is consistent with local, regional, and national regulations. Direct disposal of waste into a municipal sewer system needs to conform with all applicable laws and regulations. A spill plan needs to be available that outlines the steps to be taken to minimize any potential health and environmental threats. EPA (2001). Managing Your Hazardous Waste: A Guide for Small Businesses. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Washington, DC. https://www.epa.gov/sites/production/files/2014-12/documents/k01005.pdf.	Y	N
	RMM limiting release to air:	No obligatory RMMs.	Y	Y

FS Section	Content field	Explanation of content	CSR	eSDS
4. Obligatory RMMs onsite	**RMM Efficiency (air):**	Emissions to air are minimized when the product is used in accordance with accepted practices and the manufacturers' instructions.	Y	Y
	Reference for RMM Efficiency (air):	Nunez, C.M., et al. (1999). Evaluation of pollution prevention options to reduce styrene emissions from fiber-reinforced plastic open molding processes. Journal of the Air & Waste Management Association 49, 256-267.	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 m³/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 soil are minimized when the product is used in accordance with the accepted practices and manufacturers' instructions.	Y	Y
	Reference for RMM Efficiency (soil):	Nunez, C.M., et al. (1999). Evaluation of pollution prevention options to reduce styrene emissions from fiber-reinforced plastic open molding processes. Journal of the Air & Waste Management Association 49, 256-267.	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)	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 8.21b.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)	1%	Y	Y
	Justification of RFs (Air):	The air release factor for polymer processing at the professional scale was based on data published in a series of five publications, each focusing on	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		the extrusion of a different polymer resin. Total VOC measurements at the extruder die head were used to calculate emission factors for individual solvent hydrocarbons. The assembled values were converted to an air release factor after correcting for the VOC content in each type plastic. This adjustment yielded release factors ranging from 0.02 to 0.10%. The highest factor has been nominally raised to a final value of 1% to account for the possibility of higher releases from other types of plastic polymers Adams K., Bankston J., Barlow A., Holdren M. W., Meyer J., Marchesani V. J. (1999). Development of emission factors for polypropylene processing. *Journal of the Air & Waste Management Association*; 49: 49-56. Barlow A., Contos D. A., Holdren M. W., Garrison P. J., Harris L. R., Janke B. (1996). Development of emission factors for polyethylene processing. *Journal of the Air & Waste Management Association*; 46: 569-580. Barlow A., Moss P., Parker E., Schroer T., Holdren M., Adams K. (1997). Development of emission factors for ethylene-vinyl acetate and ethylene-methyl acrylate copolymer processing. *Journal of the Air & Waste Management Association*; 47: 1111-1118. Kriek G., Lazear N., Rhodes V., Barnes J., Bollmeier J., Chuang J. C., Holdren M. W., Wisbith A. S., Hayward J., Pietrzyk D. (2001). Development of emission factors for polyamide processing. *Journal of the Air & Waste Management Association*; 51: 1001-1008. Rhodes V. L., Kriek G., Lazear N., Kasakevich J., Martinko M., Heggs R. P., Holdren M. W., Wisbith A. S., Keigley G. W., Williams J. D. (2002). Development of emission factors for polycarbonate processing. *Journal of the Air & Waste Management Association*; 52: 781-788.		
	5.3.2 Release Factor – water			
	Numeric value / percent of input amount (Water):	1%	Y	Y
	Justification of RFs (Water):	The release of organic residues into the process water during final cleaning has been determined in several field surveys conducted by the USEPA (USEPA, 1984). The average annual mass of residues discharged directly or indirectly to cleaning wastewater was reported to be 69 kg/yr. Results from survey questionnaire of plastic parts producers also revealed an average plastic production rate of 1,390 tons/yr for those facilities using cleaning water that was indirectly discharged to a WWTP. These values yield a water release factor of 0.005% which has been rounded upward to 1% to ensure an adequate degree of conservatism. USEPA (1984). Development Document for Effluent Limitations Guidelines and Standards for the Plastics Molding and Forming Point Source Category. U.S. Environmental Protection Agency, Office of Water, Washington, DC. Available from: https://www.epa.gov/sites/production/files/2018-03/documents/plastics-molding-forming_dd_1984.pdf	Y	N
	5.3.3 Release Factor – soil			
	Numeric value / percent of input amount (Soil):	0.001%	Y	Y
	Justification of RFs (Soil):	The value has been adopted from a published source that documents the worst-case estimates of the solvent release to soil following the industrial/professional processing of polymers. The numerical assignment is 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 A3.11, Brussels, Belgium. (https://echa.europa.eu/documents/10162/16960216/tgdpart2_2ed_en.pdf.	Y	N
	5.3.4 Release Factor – waste			
	Percent of input amount disposed as waste:	3%	Y	N
	Justification of RFs:	The waste generation factor was established using information from a life cycle assessment involving the commercial production of three polyolefin plastics (Plastics Europe, 2014). The generation of hazardous waste	Y	N

FS Section	Content field	Explanation of content	CSR	eSDS
		during the creation of these plastics ranged as high as 0.3% for the low-density polyethylene. To ensure that all possible waste sources are considered an adjustment factor of 10 has been applied to this value. Plastics Europe (2014). Eco-profiles of the European Plastics Industry: High-density Polyethylene (HDPE), Low-density Polyethylene (LDPE), Linear Low-density Polyethylene (LLDPE). Association of Plastics Manufacturers. Brussels, Belgium. https://www.pedagogie.ac-aix-marseille.fr/upload/docs/application/pdf/2015-11/4-_eco-profile_pe_2014-04.pdf..		
References to SPERC Background Document				
	Reference to Background Document	ESIG/ESVOC (2023). SpERC Background Document (2nd revision). Specific Environmental Release Categories (SpERCs) for the professional use of solvents and solvent-borne substances for agrochemical use, polymer processing, and water treatment chemicals.	Y	N