Section	Content	
SPERC Title	Formulation of Adhesives	
SPERC code		
	FEICA SPERC 2.1a.v2 Formulation of Solventless/Solvent Borne Adhesives - Solids FEICA SPERC 2.1b.v2 Formulation of Solvent Borne Adhesives – Volatiles (Large Scale, > 1000 t/a) FEICA SPERC 2.1c.v2 Formulation of Solvent Borne Adhesives – Volatiles (Small Scale, < 1000 t/a) FEICA SPERC 2.2a.v2 Formulation of Water Borne Adhesives – Volatiles FEICA SPERC 2.2b.v2 Formulation of Water Borne Adhesives – Solids	
Scope		
	Covers the use of volatiles and non-volatiles in the formulation of adhesives Substance Domain: FEICA SPERC 2.1a.v2; FEICA SPERC 2.1b.v2 FEICA SPERC 2.1c.v2; FEICA SPERC 2.2a.v2; FEICA SPERC 2.2b.v2 All substances which do not evaporate to a significant extent during formulation of the construction chemical	
Related use descriptors		
	Main User Group: SU 3	
	Sector of Use: SU 10	
	Environmental Release Class: ERC 2	
	Process Categories: PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a PROC 8b, PROC 9, PROC 14, PROC 15	
	Product categories: PC 1, PC 9a, PC 9b, PC10	
Operational conditions	**Operational conditions – Phrases**	
	FEICA 2.1a.v2	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials
	FEICA 2.1b.v2	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials
	FEICA 2.1c.v2	Negligible wastewater emissions as process operates without water contact Process with efficient use of raw materials
	FEICA 2.2a.v2	Process with efficient use of raw materials
	FEICA 2.2b.v2	Process with efficient use of raw materials
	Operational conditions - Free text background	
	Sector specific classification of formulation sites.	
Obligatory onsite RMMs	**RMM – Phrase**	**RMM-Efficiency (RE$_{SPERC}$)**
	FEICA 2.1a.v2	No onsite RMM considered as there is a very small release to air	
	FEICA 2.1b.v2	Waste gas treatment, adsorption, incineration, etc.	80
	FEICA 2.1c.v2	No onsite RMM considered as there is a very small release to air	
	FEICA 2.2a.v2		

	FEICA 2.2b.v2		
	FEICA 2.1a.v2	No onsite RMM considered as there is a very small release to waste water production during the processes	
	FEICA 2.1b.v2		
	FEICA 2.1c.v2		
	FEICA 2.2a.v2		
	FEICA 2.2b.v2		

Substance use rate	Phrase		Value
	FEICA 2.1a.v2	The substance maximum use rate in a typical operation (M_{SPERC} in kg/d)	30000
	FEICA 2.1b.v2		30000
	FEICA 2.1c.v2		6000
	FEICA 2.2a.v2		5000
	FEICA 2.2b.v2		15000
	Justification		
	Typical maximum site tonnage, based on sector knowledge		

Days emitting	Phrase		Value
	FEICA 2.1a.v2	Emission days (day/year)	220
	FEICA 2.1b.v2		220
	FEICA 2.1c.v2		220
	FEICA 2.2a.v2		220
	FEICA 2.2b.v2		220

Release factors	Values (per pathway)				
		To air	To water	To soil	To waste
	FEICA 2.1a.v2	0.01	0.00005	0	0
	FEICA 2.1b.v2	0.0012	0	0	0
	FEICA 2.1c.v2	0.036	0	0	0
	FEICA 2.2a.v2	0.022	0.005	0	0
	FEICA 2.2b.v2	0.01	0.005	0	0
	Justification				
	OECD Emission Scenario Document, Series No. 22 Coating Industry (Paints, Lacquers and Varnishes), July 2009. Regarding environmental emissions, the formulation of adhesives and sealants is very similar to that of formulation of paints, lacquers and varnishes. For that reason, release fractions defined in the OECD Emission Scenario Document have been adopted for the SPERC Factsheet for the formulation of adhesives and sealants.				

Optional risk management measures	Type of RMM	Efficiency
	FEICA 2.1a.v2	Air emission are not applicable as there is no direct release to air. No wastewater treatment required.	N/A
	FEICA 2.1b.v2		N/A

	FEICA 2.1c.v2	Air emission are not applicable as there is no direct release to air.	N/A
	FEICA 2.2a.v2		N/A
	FEICA 2.2b.v2		N/A
	FEICA 2.1a.v2	No wastewater treatment required.	N/A
	FEICA 2.1b.v2	No wastewater treatment required.	N/A
	FEICA 2.1c.v2	No wastewater treatment required.	N/A
	FEICA 2.2a.v2	No wastewater treatment required.	N/A
	FEICA 2.2b.v2	No wastewater treatment required.	N/A
Narrative description	**Formulation of Adhesives**		
	o The manufacture of construction chemicals is a multi-stage batch process. The process is arranged to maximise the efficiency of use of input raw materials, through the highest conversion into formulated products. Process losses are reduced to the absolute minimum, through use of general and manufacturing plant extraction to maintain workplace concentrations of airborne VOCs and particulates below respective OELs; and through use of closed or covered manufacturing equipment to minimise evaporative losses of VOCs. The composition of products and the overall process are such that there are no discharges of raw materials or products to waste-water or to soil from the manufacturing plant. o Unambiguous description of conditions regarding waste management and wastewater discharges (e.g. if there are no restrictions in scope, statement that any type of waste disposal is covered).		
Scaling			
	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.		

Appendix - Determinant Lists

FEICA SPERC 2.1.a.v2   *Formulation of Solventless/Solvent Borne Adhesives - Solids*

Determinant Label	Quali-/ Quanti- tative	Value	Description of Value	Standard Phrase	Efficiency -if applicable
Type of Process	Qual	Solvent based process		Solvent based process	
Indoor/outdoor use	Qual	Indoor Use		Indoor	
Equipment cleaning	Qual	Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.		Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.	
Process efficiency	Qual	Process with efficient use of raw materials.	Typically implemented measures for reducing emissions to waste water may include: - Closed batch systems	Process with efficient use of raw materials.	

FEICA SPERC 2.1b.v2 Formulation of Solvent Borne Adhesives – Volatiles (Large Scale)

Determinant Label	Quali-/ Quanti- tative	Value	Description of Value	Standard Phrase	Efficiency -if applicable
Type of Process	Qual	Solvent based process		Solvent based process	
Indoor/outdoor use	Qual	Indoor Use		Indoor	
Equipment cleaning	Qual	Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.		Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.	
Process efficiency	Qual	Process with efficient use of raw materials.	Typically implemented measures for reducing emissions to waste water may include: - Closed batch systems	Process with efficient use of raw materials.	
On-site treatment of off-air	Quan	Vapor recovery (adsorption ..) or other technique for reducing volatiles emissions (incineration, thermal oxidation)		Vapor recovery (adsorption ..) or other technique for reducing volatiles emissions (incineration, thermal oxidation)	air: >80%

FEICA SPERC 2.1c.v2 *Formulation of Solvent Borne Adhesives – Volatiles (Small Scale)*

Determinant Label	Quali-/ Quanti- tative	Value	Description of Value	Standard Phrase	Efficiency -if applicable
Type of Process	Qual	Solvent based process		Solvent based process	
Indoor/outdoor use	Qual	Indoor Use		Indoor	
Equipment cleaning	Qual	Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.		Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste.	
Process efficiency	Qual	Process with efficient use of raw materials.	Typically implemented measures for reducing emissions to waste water may include: - Closed batch systems	Process with efficient use of raw materials.	

FEICA SPERC 2.2a.v2 Formulation of Water Borne Adhesives – Volatiles

Determinant Label	Quali-/ Quanti-tative	Value	Description of Value	Standard Phrase	Efficiency -if applicable
Type of Process	Qual	Substance applied in aqueous process solution with negligible volatilization		Product applied in aqueous process solution with negligible volatilization.	
Indoor/outdoor use	Qual	Indoor Use		Indoor	
Equipment cleaning	Qual	Equipment cleaned with water, washing disposed of with wastewater		Equipment cleaned with water, washing disposed of with wastewater	
Process efficiency	Qual	Process with efficient use of raw materials.	Typically implemented measures for reducing emissions to waste water may include: - Closed batch systems	Process with efficient use of raw materials.	

FEICA SPERC 2.2b.v2 *Formulation of Water Borne Adhesives – Solids*

Determinant Label	Quali-/ Quanti-tative	Value	Description of Value	Standard Phrase	Efficiency -if applicable
Type of Process	Qual	Substance applied in aqueous process solution with negligible volatilization		Product applied in aqueous process solution with negligible volatilization.	
Indoor/outdoor use	Qual	Indoor Use		Indoor	
Equipment cleaning	Qual	Equipment cleaned with water, washing disposed of with wastewater		Equipment cleaned with water, washing disposed of with wastewater	
Process efficiency	Qual	Process with efficient use of raw materials.	Typically implemented measures for reducing emissions to waste water may include: - Closed batch systems	Process with efficient use of raw materials.	