## SAFETY DATA SHEET

## **Annex II**

## **Exposure scenario**

Substance Name: pentane

**EC Number:** 203-692-4

**CAS Number:** 109-66-0

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## 1. EXPOSURE ASSESSMENT

			Ider	ntified	uses	Result life stage							
ES number	Volume (EU tonnes per year per use)	Manufacture	Formulation	End use	Consumer use	Service life (for articles)	Waste stage	Linked to Identified Use	Sector of Use (SU)	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
ES 1	2.16E+05	X						01	3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	1, 4
ES 2	3.60E+04	X						01a	3	NA	1, 2, 3, 4, 8a, 8b, 9, 15	NA	1, 2, 3, 4, 5, 6, 7
ES 3	3.40E+04		X					02	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	NA	2
ES 4	2.10E+01			X				03a	3	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	NA	4
ES 5	1.00E+01				X			03c	21	1, 4, 8 (excipient only), 9, 15, 18, 23, 24, 31, 34	NA	NA	8a, 8d
ES 6	7.50E+01			X				04a	3	NA	2, 3, 4, 7, 8a, 8b, 10, 13	NA	4
ES 7	7.50E+01			X				04b	22	NA	2, 3, 4, 8a, 8b, 10, 11, 13	NA	8a, 8d
ES 8	4.15E+02				X			04c	21	3, 4, 8 (excipient only), 9, 24, 35, 38	NA	NA	8a, 8d

			Iden	tified	uses	Result life of stage							
ES number	Volume (EU tonnes per year per use)	Manufacture	Formulation	End use	Consumer use	Service life (for articles)	Waste stage	Linked to Identified Use	Sector of Use (SU)	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
ES 9	1.46E+04			X				09	3	NA	1, 2, 3, 8b, 9, 12	NA	4
ES 10	1.00E+02			X				11a	22	NA	1, 2, 4, 8a, 8b, 11, 13	NA	8a, 8d
ES 11	4.00E+01			X				12a	3	NA	1, 2, 3, 8a, 8b, 16	NA	7
ES 12	1.00E+02			X				12b	22	NA	1, 2, 3, 8a, 8b, 16	NA	9a, 9b
ES 13	7.23E+03				X			12c	21	13	NA	NA	9a, 9b
ES 14	9.21E+04			X				13a	3	NA	1, 2, 3, 4, 8a, 8b, 9	NA	7
ES 15	5.00E+02			X				13b	22	NA	1, 2, 3, 8a, 9, 20	NA	9a, 9b
ES 16	1.62E+03				X			16	21	28, 39	NA	NA	8a, 8d
ES 17	5.00E+01			X				17a	3	NA	10, 15	NA	2, 4
ES 18	5.01E+01			X				17b	22	NA	10, 15	NA	8a

1.1 Exposure Scenario						
Section 1 Exposure Scenario	Title					
Title						
	Manufacture of Substance – Industrial GES1.1					
Use Descriptor						
Sector(s) of Use		3				
Process Categories		1, 2, 3, 4, 8a, 8b, 15				
		Further information on the mapping and allocation of				
		PROC codes is contained in Appendix 1.a.				
Environmental Release Catego		1,4				
Specific Environmental Releas		ESVOC 1.1.v1				
Processes, tasks, activities co						
		emical or extraction agent within closed or contained				
		eling/recovery, material transfers, storage, sampling,				
container).	, maintenance and ioa	iding (including marine vessel/barge, road/rail car and bulk				
Assessment Method						
See Section 3 [AM1].  Section 2 Operational condit	ions and risk manag	ramant magsuras				
Section 2 Operational conditi	ions and risk manag	CHICH HEASULES				
Section 2.1 Control of worke	r exposure					
Product characteristics	Схрозигс					
Physical form of product	Liquid, vanour pressi	ure > 10 kPa at STP [OC5]				
Concentration of substance in		abstance in the product up to 100% (unless stated differently)				
product	[G13]	(united in the product up to 10070 (united blacks united united)				
Amounts used	No Limit					
Frequency and duration of use	Covers daily exposur	res up to 8 hours (unless stated) [G2]				
Other Operational Conditions		20oC above ambient [G15]				
affecting worker exposure						
	Assumes a good basi [G1]	c standard of occupational hygiene has been implemented				
Contributing Scenarios		gement Measures and Operating Conditions (only demonstrate safe use listed)				
General exposures (closed systems) [CS15] PROC1	No specific measure	s identified[EI18]				
General exposures (closed systems) [CS15] PROC2	No specific measure	s identified[EI18]				
General exposures (closed systems) [CS15] PROC3	No specific measure	s identified[EI18]				
General exposures (open	No specific measure	s identified[EI18]				
systems) [CS16] PROC4						
Process sampling [CS2] PROC8b	No specific measure	. ,				
Laboratory activities [CS36] PROC15	No specific measure	s identified[EI18]				
Bulk transfers [CS14](open systems) [CS108] PROC8b	No specific measures identified[EI18]					
Bulk transfers [CS14](closed systems) [CS107] PROC8b	No specific measures identified[EI18]					
Equipment cleaning and maintenance [CS39] PROC8a	t cleaning and No specific measures identified[EI18]					
Material storage [CS67] PROC1	terial storage [CS67] No specific measures identified[EI18]					
faterial storage [CS67] No specific measures identified[EI18]  ROC2						
Additional information on the	basis for the allocati	ion of the identified OCs and RMMs is contained in				
Appendices 1 to 3						

Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	Io 1
Fraction of EU tonnage used in region [A1]	0.1
Regional use tonnage (tonnes/year) [A2]	22000
Fraction of Regional tonnage used locally [A3]	22000
Annual site tonnage (tonnes/year) [A5]	22000
Maximum daily site tonnage (kg/day) [A4]	72000
Frequency and duration of use	
Continuous release [FD2]. Emission days (days/year) [FD4]	300
Environmental factors not influenced by risk management	300
, c	110
Local freshwater dilution factor [EF1]  Local marine water dilution factor [EF2]	10
Other given operational conditions affecting environmental exposure	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM) [OOC4]	0.005
Release fraction to wastewater from process (initial release prior to RMM)	0.0003
[OOC5]	0.0003
Release fraction to soil from process (initial release prior to RMM) [OOC6]	0.0001
Technical conditions and measures at process level (source) to prevent release	ase
Common practices vary across sites thus conservative process release estimates	
Technical onsite conditions and measures to reduce or limit discharges, air	
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to or recover from onsite wastewate	* [TCD14]
If discharging to domestic sewage treatment plant, no onsite wastewater treatment	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	90
Treat onsite wastewater (prior to receiving water discharge) to provide the	7.5
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of ≥ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed
[OMS3].  Conditions and measures related to municipal sewage treatment plant	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3]	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96.9
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total	2200000
wastewater treatment removal (kg/d) [STP6]	
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	10000
Conditions and measures related to external treatment of waste for disposa	1
During manufacturing no waste of the substance is generated [ETW4].	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated [ERW2].	
Additional information on the basis for the allocation of the indentified OCs a	and RMMs is contained in
Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet	
Section 3 Exposure Estimation	
<b>3.1. Health</b> Estimated workplace exposures are not expected to exceed DNELs when the ide	entified rick management
measures are adopted.[G8]	antined risk management
meaning are anobication.	

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation:
Human Health
See Appendix 2.a.
Environment
See PETRORISK file (Annex III).

# 1.2 Distribution of Substance – Industrial 1.2.1 Exposure Scenario

1.2.1 Exposure Scenario						
	Section 1 Exposure Scenario Title					
Title						
Distribution of Substance – Ind	Distribution of Substance – Industrial GES1A.1					
Use Descriptor						
Sector(s) of Use		3				
Process Categories		1, 2, 3, 4, 8a, 8b, 9, 15				
		Further information on the mapping and allocation of				
		PROC codes is contained in Appendix 1.a.				
Environmental Release Catego	ries	1, 2, 3, 4, 5, 6, 7				
Specific Environmental Releas	e Category	ESVOC 1.1b.v1				
Processes, tasks, activities cov	vered					
Loading (including marine vess	sel/barge, rail/road ca	r and IBC loading) and repacking (including drums and				
small packs) of substance, inclu	uding its sampling, st	orage, unloading, maintenance and associated laboratory				
activities.						
Assessment Method						
See Section 3 [AM1].						
Section 2 Operational condit	ions and risk manag	gement measures				
•						
Section 2.1 Control of worke	r exposure					
Product characteristics						
Physical form of product	Liquid, vapour press	sure > 10 kPa at STP [OC5]				
Concentration of substance in		ubstance in the product up to 100% (unless stated differently)				
product	[G13]					
Amounts used	No Limit					
Frequency and duration of use	Covers daily exposu	Covers daily exposures up to 8 hours (unless stated) [G2]				
Other Operational Conditions	Assumes use at not >	> 20oC above ambient [G15]				
affecting worker exposure						
	Assumes a good bas [G1]	ic standard of occupational hygiene has been implemented				
<b>Contributing Scenarios</b>		gement Measures and Operating Conditions (only				
		demonstrate safe use listed)				
	-	·				
General exposures (closed	No specific measure	s identified[EI18]				
systems) [CS15] PROC1	N: C	- : 1				
General exposures (closed	No specific measure	s identified[E118]				
systems) [CS15] PROC2	No an acida massauma	a idantifiad[FI10]				
General exposures (closed	No specific measure	s identified[E118]				
systems) [CS15] PROC3	No specific measure	g identified[EI19]				
General exposures (open systems) [CS16] PROC4	No specific measure	s identifical [E110]				
Process sampling [CS2]	No specific measure	s identified[FI18]				
PROC3	110 specific incasure	5 Identifica[E110]				
Laboratory activities [CS36]	No specific measure	s identified[FI18]				
PROC15	1 to specific incasure	5 Identification				
Bulk transfers [CS14](closed	No specific measure	s identified[EI18]				
systems) [CS107] PROC8b	1.0 specific incasure	o racinativa[Diro]				
Bulk transfers [CS14](open	No specific measure	s identified[EI18]				
systems) [CS108] PROC8b	Transition in capacit	- ··· · · · · · · · · · · · · · · · · ·				
Drum and small package	No specific measure	s identified[EI18]				
filling [CS6] PROC9	illing [CS6] PROC9					
Equipment cleaning and No specific measures identified[EI18]						
maintenance [CS39] PROC8a						
Material storage [CS67]	No specific measure	s identified[EI18]				
PROC1		· · ·				
Material storage [CS67]	No specific measure	s identified[EI18]				
PROC2						

Additional information on the basis for the allocation of the identified OCs an	d RMMs is contained in
Appendices 1 to 3 Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region [A1]	0.1
Regional use tonnage (tonnes/year) [A2]	3600
Fraction of Regional tonnage used locally [A3]	0.002
Annual site tonnage (tonnes/year) [A5]	7.2
Maximum daily site tonnage (kg/day) [A4]	360
Frequency and duration of use	200
Continuous release [FD2].	
Emission days (days/year) [FD4]	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Other given operational conditions affecting environmental exposure	•
Release fraction to air from process (initial release prior to RMM) [OOC4]	0.0001
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]	0.00001
Release fraction to soil from process (initial release prior to RMM) [OOC6]	0.00001
Technical conditions and measures at process level (source) to prevent relea	ase
Common practices vary across sites thus conservative process release estimates	used [TCS1].
Technical onsite conditions and measures to reduce or limit discharges, air	emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	90
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%) [TCR10]	0
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine [OMS3].	erated, contained or reclaimed
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]	96.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96.9
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total wastewater treatment removal (kg/d) [STP6]	13000000
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	2000
Conditions and measures related to external treatment of waste for disposal	l
External treatment and disposal of waste should comply with applicable local an [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local ar [ERW1].	_
Additional information on the basis for the allocation of the indentified OCs a Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet	and RMMs is contained in
Section 3 Exposure Estimation	
3.1. Health	

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation: Human Health See Appendix 2.a. Environment See PETRORISK file (Annex III)...

# 1.3 Formulation & (Re)packing of Substances and Mixtures – Industrial 1.3.1Exposure Scenario

Title Formulation & (Re)packing of Substances and Mixtures — Industrial GES2.1  Use Descriptor Sector(s) of Use Process Categories   1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories   2	1.3.1Exposure Scenario						
Formulation & (Re)packing of Substances and Mixtures — Industrial GES2.1  Use Descriptor  Sector(s) of Use  Process Categories  1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories  Specific Environmental Release Category  ESVOC 2.2 v1  Processes, tasks, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method  See Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure  Product characteristics  Physical form of product  Concentration of substance in product  Covers perentage substance in the product up to 100% (unless stated differently) [G13]  Amounts used  Frequency and duration of use  Other Operational Conditions affecting worker exposure  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Secnarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  No specific measures identified[E118]  Systems) [CS15] PROC3  General exposures (closed systems) [CS15] PROC3  General exposures (closed systems) [CS15] PROC3  General exposures (open systems) [CS15] PROC3  Forest and the controls to demonstrate safe use listed)  No specific measures identified[E118]  No specific measures identified[E118]  No specific measures identified[E118]  Provide enhanced mechanical ventilation by mechanical means [F48]  Provide enhanced measures identified[E118]  No specific measures identifie		Title					
Use Descriptor Sector(s) of Use 3 Process Categories 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories 2 Specific Environmental Release Category ESVOC 2.2.v1 Processes, task, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, albelting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method See Section 3 [AMI] Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure Product characteristics Physical form of product Concentration of substance in Covers percentage substance in the product up to 100% (unless stated differently) [G13] Amounts used No Limit Prequency and duration of use Other Operational Conditions affecting worker exposure Assumes a good basic standard of occupational hygiene has been implemented [G1] Contributing Scenarios  General exposures (closed systems) [CS15] PROC1 General exposures (closed systems) [CS15] PROC1 General exposures (closed systems) [CS15] PROC2 General exposures (closed systems) [CS15] PROC3 General exposures (closed systems) [CS16] PROC4 Batch processes at elevated temperature (* then accurate temperature (* then 20°C above ambient tempera							
Sector(s) of Use	. , , , , , , , , , , , , , , , , , , ,	Formulation & (Re)packing of Substances and Mixtures – Industrial GES2.1					
Process Categories	-	Use Descriptor					
Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.			3				
Environmental Release Categories Specific Environmental Release Category Specific Environmental Release Category Specific Environmental Release Category Specific Environmental Release Category Services Staks, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method See Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 2 Operational conditions and risk management measures  Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Covers percentage substance in the product up to 100% (unless stated differently) [G13] Amounts used Covers percentage substance in the product up to 100% (unless stated differently) [G13] Amounts used No Limit Frequency and duration of use Covers daily exposures up to 8 hours (unless stated) [G2]  Other Operational Conditions affecting worker exposure  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  No specific measures identified[E118]	Process Categories						
Environmental Release Categories   2 Specific Environmental Release Category   ESVOC 2.2.v1  Processes, tasks, activities covered  Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method  See Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure  Product characteristics  Physical form of product   Liquid, vapour pressure > 10 kPa at STP [OC5]  Concentration of substance in Covers percentage substance in the product up to 100% (unless stated differently) [G13]  Amounts used   No Limit  Frequency and duration of use   Covers daily exposures up to 8 hours (unless stated) [G2]  Other Operational Conditions affecting worker exposure  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Scenarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  General exposures (closed systems) [CS15] PROC1  General exposures (closed systems) [CS15] PROC2  General exposures (closed systems) [CS16] PROC3  Froves sampling [CS2] No specific measures identified[E118]  No specific measures identified[E118]  No specific measures identified[E118]  Provide enhanced mechanical ventilation by mechanical means [E48] temperature (cut the protection of the product of the protection of the pro							
Specific Environmental Release Category   ESVOC 2.2.v1   Processes, tasks, activities covered   Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method   See Section 3 [AM1].   Section 2 Operational conditions and risk management measures   Section 2.1 Control of worker exposure   Product characteristics   Physical form of product   Concentration of substance in   Concentration of substance in   Covers percentage substance in the product up to 100% (unless stated differently) [G13]   Amounts used   No Limit   Frequency and duration of use   Covers daily exposures up to 8 hours (unless stated) [G2]   Other Operational Conditions affecting worker exposure   Assumes a good basic standard of occupational hygiene has been implemented [G1]   Contributing Scenarios   General exposures (closed systems) [CS15] PROC2   General exposures (closed systems) [CS15] PROC3   General exposures (closed systems) [CS15] PROC3   General exposures (closed systems) [CS15] PROC3   General exposures (closed systems) [CS16] PROC4   Batch processes at elevated temperature   Concentration is carried ut at elevated temperature   Concentration is carrie			PROC codes is contained in Appendix 1.a.				
Processes, tasks, activities covered Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method See Section 3 [AM1]. Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure Product characteristics Physicial form of product Concentration of substance in Covers percentage substance in the product up to 100% (unless stated differently) [G13] Amounts used No Limit Frequency and duration of use Covers daily exposures up to 8 hours (unless stated) [G2] Other Operational Conditions affecting worker exposure  Assumes use at not > 200C above ambient [G15]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Scenarios  General exposures (closed systems) [CS15] PROC3  General exposures (closed systems) [CS15] PROC3  General exposures (closed systems) [CS15] PROC3  General exposures (closed systems) [CS16] PROC3  General exposures (open systems) [CS16] PROC3  General exposures (open systems) [CS16] PROC3  General exposures (open systems) [CS16] PROC3  Batch processes at elevated temperature (harmore temperature) (CT) PROC3  Process sampling [CS2]  Proc3  Laboratory activities [CS36]  No specific measures identified[E118]							
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including storage, materials transfers, mixing, tabletting, compression, pelletization, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.  Assessment Method  See Section 2 Operational conditions and risk management measures  Section 2 Operational conditions and risk management measures  Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 3 [AM1].  Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 3 [AM1].  Section 2 [Am1].  Section 3 [AM1].  Section 2 [AM1].  Section 3 [AM1].  Section 2 [AM1].  Section 3 [AM1].  Section 3 [AM1].  Section 2 [AM1].  Section 3 [AM1].  Section 4 [AM1].  Section 4 SIM1 [AM2].  Section 3 [AM1].  Section 4 SIM1 [AM2].  Section 4 SIM1 [AM2].  Section 4 SIM1 [AM2].  Section 4 SIM1 [AM2].  Section 5 [AM2].  Section 7 [AM2].  Section 7 [AM2].  Section 7 [AM2].  Section 7 [AM2].  Section 8 [AM2].  Section 9 [AM2].  Section 1 [AM2].  Section 9 [AM2].  Section 9 [AM2].  Section 9 [AM2].	Processes, tasks, activities cov	vered					
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		No specific measure	s identified[EI18]				
	from/pouring from containers						

[CS22] PROC8a							
Drum/batch transfers [CS8]	No specific measures identified[EI18]						
	PROC8b						
Production or preparation or No specific measures identified[EI18]							
articles by tabletting,							
compression, extrusion or							
pelletisation [CS100] PROC14							
Drum and small package filling [CS6] PROC9	No specific measures identified[EI18]						
Equipment cleaning and maintenance [CS39] PROC8a	No specific measures identified[EI18]						
Material storage [CS67] PROC1	No specific measures identified[EI18]						
Material storage [CS67] PROC2	No specific measures identified[EI18]						
	basis for the allocation of the identified OCs an	d RMMs is contained in					
Appendices 1 to 3	busis for the unocunon of the menufica oes an	u Kinivis is contained in					
Section 2.2 Control of enviro	nmental exposure						
Product characteristics	monum emposure						
	PrC3]. Predominantly hydrophobic [PrC4a].						
1 .	Predominantly hydrophobic [Pre4a].						
Amounts used		T					
Fraction of EU tonnage used in	•	0.1					
Regional use tonnage (tonnes/y		3400					
Fraction of Regional tonnage u	sed locally [A3]	1					
Annual site tonnage (tonnes/year	ar) [A5]	3400					
Maximum daily site tonnage (k	g/day) [A4]	11000					
Frequency and duration of us							
Continuous release [FD2].	· ·						
Emission days (days/year) [FD4] 300							
Environmental factors not influenced by risk management							
Local freshwater dilution factor		10					
	t ,	100					
	r j						
Other given operational conditions affecting environmental exposure							
Release fraction to air from process (after typical onsite RMMs, consistent with 0.025							
EU Solvent Emissions Directiv		0.025					
	from process (initial release prior to RMM)	0.0002					
[OOC5]	nom process (minum resource prior to remin)	0.0002					
	ocess (initial release prior to RMM) [OOC6]	0.0001					
*	Technical conditions and measures at process level (source) to prevent release						
	, , ,						
<u> </u>	Common practices vary across sites thus conservative process release estimates used [TCS1].  Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil						
Technical offsite conditions at	nu measures to reduce or mine discharges, an	chiissions and releases to son					
Risk from environmental exposure is driven by freshwater sediment [TCR1b].							
Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].							
No wastewater treatment require							
	typical removal efficiency of (%) [TCR7]	0					
Treat onsite wastewater (prior to receiving water discharge) to provide the							
	required removal efficiency ≥ (%) [TCR8]						
	If discharging to domestic sewage treatment plant, provide the required onsite 0						
wastewater removal efficiency of ≥ (%) [TCR10]							
Organisation measures to prevent/limit release from site							
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].							
Conditions and measures related to municipal sewage treatment plant							

Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3]	
Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total	650000
wastewater treatment removal (kg/d) [STP6]	
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	2000

#### Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

#### Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### Section 3 Exposure Estimation

#### 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

**Human Health** 

See Appendix 2.a.

**Environment** 

### 1.4 Uses in Coatings – Industrial

### 1.4.1 Exposure Scenario

Section 1 Exposure Scenario Title	
Title	
Uses in Coatings – Industrial GES3.1	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.
Environmental Release Categories	4
Specific Environmental Release Category	ESVOC 4.3a.v1
D 4 1 4' '4' 1	<u> </u>

#### Processes, tasks, activities covered

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

#### **Assessment Method**

See Section 3 [AM1].

#### Section 2 Operational conditions and risk management measures

Section 2.1 Control of worke	r exposure				
Product characteristics					
Physical form of product	Liquid, vapour pressure > 10 kPa at STP [OC5]				
Concentration of substance in	Covers percentage substance in the product up to 100% (unless stated differently)				
product	[G13]				
Amounts used	No Limit				
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated) [G2]				
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]				
affecting worker exposure					
	Assumes a good basic standard of occupational hygiene has been implemented				
	[G1]				
<b>Contributing Scenarios</b>	Specific Risk Management Measures and Operating Conditions (only				
	required controls to demonstrate safe use listed)				
General exposures (closed	No specific measures identified[EI18]				
systems) [CS15] PROC1					
General exposures (closed	No specific measures identified[EI18]				
systems) [CS15] with sample					
collection [CS56]Use in					
contained systems [CS38]					
PROC2					
Film formation - force drying	Provide enhanced mechanical ventilation by mechanical means [E48]				
(50 - 100°C). Stoving					
(>100°C). UV/EB radiation					
curing [CS94]Operation is					
carried out at elevated					
temperature (> then 20°C					
above ambient temperature)					
[OC7] PROC2					
Mixing operations (closed	No specific measures identified[EI18]				
systems) [CS29]General					
exposures (closed systems)					
[CS15] PROC3					
Film formation - air drying	No specific measures identified[EI18]				
[CS95] PROC4					
Preparation of material for	No specific measures identified[EI18]				
application [CS96]Mixing					

operations (open systems)			
[CS30] PROC5	)		
Spraying (automatic/robotic) [CS97] PROC7	No specific measures identified[EI18]		
Manual [CS34]Spraying [CS10] PROC7	No specific measures identified[EI18]		
Material transfers [CS3] PROC8a	No specific measures identified[EI18]		
Material transfers [CS3]	No specific measures identified[EI18]		
PROC8b	11 10 157101		
Roller, spreader, flow application [CS98] PROC10	No specific measures identified[EI18]		
Dipping, immersion and pouring [CS4] PROC13	No specific measures identified[EI18]		
Laboratory activities [CS36] PROC15	No specific measures identified[EI18]		
Material transfers [CS3]Drum/batch transfers	No specific measures identified[EI18]		
[CS8]Transfer from/pouring			
from containers [CS22] PROC9			
Production or preparation or	No specific measures identified[EI18]		
articles by tabletting, compression, extrusion or			
pelletisation [CS100] PROC14	1		
	e basis for the allocation of the identified OCs an	nd RMMs is contained in	
Appendices 1 to 3	, ,		
Section 2.2 Control of environment	onmental exposure		
Product characteristics			
Substance is complex UVCB [	PrC3]. Predominantly hydrophobic [PrC4a].		
Amounts used			
Fraction of EU tonnage used in	n region [A1]	0.1	
Regional use tonnage (tonnes/year) [A2]  2.1			
Fraction of Regional tonnage used locally [A3]			
Annual site tonnage (tonnes/year) [A5]		2.1	
Maximum daily site tonnage (kg/day) [A4]		110	
Frequency and duration of use			
Continuous release [FD2].			
Emission days (days/year) [FD	04]	20	
	ifluenced by risk management		
Local freshwater dilution factor	or [EF1]	10	
Local marine water dilution fa	100		
Other given operational conditions affecting environmental exposure			
Release fraction to air from process (initial release prior to RMM) [OOC4] 0.098			
Release fraction to wastewater from process (initial release prior to RMM)  [OOC5]  0.0007			
Release fraction to soil from process (initial release prior to RMM) [OOC6] 0			
Technical conditions and measures at process level (source) to prevent release			
Common practices vary across sites thus conservative process release estimates used [TCS1].			
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil			
Risk from environmental exposure is driven by freshwater sediment [TCR1b].  Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].  No wastewater treatment required [TCR6].			
Treat air emission to provide a	Treat air emission to provide a typical removal efficiency of (%) [TCR7]		
1 71 7 7 7 1			

Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3]	
Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total	190000

2000

#### Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

#### Conditions and measures related to external recovery of waste

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d) [STP5]

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### **Section 3 Exposure Estimation**

wastewater treatment removal (kg/d) [STP6]

#### 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

**Exposure Estimation:** 

**Human Health** 

See Appendix 2.a.

Environment

# 9.5 Uses in Coatings – Consumer 9.5.1 Exposure Scenario

Section 1 Exposure Scenario Title		
Title		
Uses in Coatings – Consumer (	GES3.3	
Use Descriptor		
Sector(s) of Use		21
Product Categories		1, 4, 8 (excipient only), 9, 15, 18, 23, 24, 31, 34
		Further information on the mapping and allocation of PC
		codes is contained in Appendix 1.b.
Environmental Release Categor	ries	8a, 8d
Specific Environmental Release		ESVOC 8.3c.v1
Processes, tasks, activities covered		
		etc) including exposures during use (including product
		by hand or similar methods) and equipment cleaning.
Assessment Method		
See Section 3 [AM1].		
Section 2 Operational condit	ions and risk mana	gement measures
_		
Section 2.1 Control of consur	ner exposure	
Product characteristics		
Physical form of product	liquid	
Vapour pressure	56.3 kPa	
Concentration of substance in	Unless otherwise sta	ated, cover concentrations up to 100% [ConsOC1]
product		
Amounts used	skin contact area up	ated, covers use amounts up to13800g [ConsOC2]; covers to 857.5cm2 [ConsOC5]
Frequency and duration of	Unless otherwise sta	ated, covers use frequency up to 1 times per day [ConsOC4];
use/exposure	covers exposure up to 6 hours per event [ConsOC14]	
Other Operational Conditions		
affecting exposure	assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8].	
Product Category	Specific Risk Management Measures and Operating Conditions (only	
	required controls to	demonstrate safe use listed)
PC1:Adhesives, sealants	Unless otherwise s	stated, covers concentrations up to 30% [ConsOC1]; covers
Glues, hobby use		ays/year[ConsOC3]; covers use up to 1 time/on day of
		vers skin contact area up to 35.73 cm2 [ConsOC5]; for each
		use amounts up to 9g [ConsOC2]; covers use under typical
		ation [ConsOC8]; covers use in room size of
	20m3[ConsOC11]	
	4.00hr/event[Cons	OC14];
	No specific DMMs	s identified beyond those OCs stated
	TNO SPECIFIC KIVIIVIS	s racinitied beyond those of stated
PC1:Adhesives, sealants	Unless otherwise s	stated, covers concentrations up to 30% [ConsOC1]; covers
Glues DIY-use (carpet glue,		/s/year[ConsOC3]; covers use up to 1 time/on day of
tile glue, wood parquet glue)		overs skin contact area up to 110.00 cm2 [ConsOC5]; for
		vers use amounts up to 6390g [ConsOC2]; covers use under
		ventilation [ConsOC8]; covers use in room size of
	20m3[ConsOC11]	
	6.00hr/event[Cons	OC14];
	No specific DMM	identified beyond these OCs stated
	•	s identified beyond those OCs stated
PC1:Adhesives, sealants		stated, covers concentrations up to 30% [ConsOC1]; covers
Glue from spray		/s/year[ConsOC3]; covers use up to 1 time/on day of
		vers skin contact area up to 35.73 cm2 [ConsOC5]; for each
	use event, covers	use amounts up to 85.05g [ConsOC2]; covers use under

	typical household ventilation [ConsOC8]; covers use in room size of
	20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants Sealants	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and deicing productsWashing car window	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and deicing productsPouring into radiator	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and deicing productsLock de-icer	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 214.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to

cleaners)	0.33hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersWaterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners-Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersAerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersRemovers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clayFillers and putty	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties,	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers	
plasters, modeling clay Plasters and floor equalizers	use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
	No specific RMMs identified beyond those OCs stated	
PC9b:Fillers, putties, plasters, modeling clay-Modelling clay		
	No specific RMMs identified beyond those OCs stated	
PC9c:Finger paintsFinger paints	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];	
	No specific RMMs identified beyond those OCs stated	
PC15_n: Non-metal surface treatment productsWaterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];	
	No specific RMMs identified beyond those OCs stated	
PC15_n: Non-metal surface treatment productsSolvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];	
	No specific RMMs identified beyond those OCs stated	
PC15_n: Non-metal surface treatment productsAerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];	
	No specific RMMs identified beyond those OCs stated	
PC15_n: Non-metal surface treatment productsRemovers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	

	No specific RMMs identified beyond those OCs stated
PC18_n: Ink and tonersInks and toners.	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 71.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 40g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC23_n: Leather tanning, dye, finishing, impregnation and care productsPolishes, wax / cream (floor, furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC23_n: Leather tanning, dye, finishing, impregnation and care productsPolishes, spray (furniture, shoes)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsLiquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsPastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsSprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC31:Polishes and wax blendsPolishes, wax / cream (floor, furniture,	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for

-1)	1	0 - [C 0 C 2] 1	
shoes)	each use event, covers use amounts up to 142		
	typical household ventilation [ConsOC8]; 20m3[ConsOC11]; for each use even		
	1.23hr/event[ConsOC14];	i, covers exposure up to	
	2		
	No specific RMMs identified beyond those OC	Cs stated	
PC31:Polishes and wax	Unless otherwise stated, covers concentration		
blendsPolishes, spray			
(furniture, shoes)	use[ConsOC4]; covers skin contact area up each use event, covers use amounts up to 35		
	typical household ventilation [ConsOC8];		
	20m3[ConsOC11]; for each use even		
	0.33hr/event[ConsOC14];		
	No specific RMMs identified beyond those OC	Cs stated	
	-		
PC34_n: Textile dyes,	Unless otherwise stated, covers concentration		
finishing and impregnating products	use up to 365 days/year[ConsOC3]; covers use[ConsOC4]; covers skin contact area up		
products	each use event, covers use amounts up to 115		
	typical household ventilation [ConsOC8];	covers use in room size of	
	20m3[ConsOC11]; for each use even	t, covers exposure up to	
	1.00hr/event[ConsOC14];		
	No specific RMMs identified beyond those OC	Cs stated	
Additional information on the	basis for the allocation of the identified OCs an	nd RMMs is contained in	
Appendices 1 to 3			
Section 2.2 Control of environ	nmental exposure		
Product characteristics			
	PrC3]. Predominantly hydrophobic [PrC4a].		
Amounts used			
Fraction of EU tonnage used in		0.1	
Regional use tonnage (tonnes/y		1	
Fraction of Regional tonnage us	* * *	0.0005	
Annual site tonnage (tonnes/yea	, <u> </u>	0.0005	
Maximum daily site tonnage (k Frequency and duration of us		0.0014	
Continuous release [FD2].			
Emission days (days/year) [FD4	41	365	
Environmental factors not influenced by risk management			
Local freshwater dilution factor	Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor [EF2]		100	
Other given operational conditions affecting environmental exposure			
Release fraction to air from wide dispersive use (regional only) [OOC7] 0.99			
Release fraction to wastewater from wide dispersive use [OOC8]		0.01	
Release fraction to soil from wide dispersive use (regional only) [OOC9] 0.005		0.005	
	ted to municipal sewage treatment plant		
	ure is driven by freshwater [STP7a].	loc o	
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3] 96.9			
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total 60			
wastewater treatment removal (kg/d) [STP6]			
Assumed domestic sewage treatment plant flow (m³/d) [STP5] 2000			
Conditions and measures related to external treatment of waste for disposal			

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]

#### Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### **Section 3 Exposure Estimation**

#### 3.1. Health

Estimated consumer exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[ConsG1]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

#### **Human Health**

See Appendix 2.b.

#### **Environment**

### 1.6 Use in Cleaning Agents – Industrial

1.6.1 Exposure Scenario

Section 1 Exposure Scenario Title	
Title	
Use in Cleaning Agents – Industrial GES 4.1	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 4, 7, 8a, 8b, 10, 13
	Further information on the mapping and allocation of
	PROC codes is contained in Appendix 1.a.
Environmental Release Categories	4
Specific Environmental Release Category	ESVOC 4.4a.v1
Processes tasks activities covered	

#### Processes, tasks, activities covered

Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

#### **Assessment Method**

See Section 3 [AM1]

### Section 2 Operational conditions and risk management measures

Section 2.1 Control of worke	r exposure	
Product characteristics		
Physical form of product	Liquid, vapour pressure > 10 kPa at STP [OC5]	
Concentration of substance in	Covers percentage substance in the product up to 100% (unless stated differently)	
product	[G13]	
Amounts used	No Limit	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated) [G2]	
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]	
affecting worker exposure		
	Assumes a good basic standard of occupational hygiene has been implemented [G1]	
Contributing Scenarios	Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
Bulk transfers [CS14] PROC8a	No specific measures identified[EI18]	
Automated process with	No specific measures identified[EI18]	
(semi) closed systems.		
[CS93]Use in contained		
systems [CS38] PROC2		
Automated process with	No specific measures identified[EI18]	
(semi) closed systems.		
[CS93]Drum/batch transfers		
[CS8] PROC3		
Application of cleaning	No specific measures identified[EI18]	
products in closed systems		
[CS101] PROC2		
Filling / preparation of	No specific measures identified[EI18]	
equipment from drums or		
containers. [CS45] PROC8b		
Use in contained batch	No specific measures identified[EI18]	
processes [CS37] PROC4		
Degreasing small objects in	No specific measures identified[EI18]	
cleaning station [CS41]		
PROC13		
Cleaning with low-pressure	No specific measures identified[EI18]	
washers [CS42] PROC10		
Cleaning with high pressure	No specific measures identified[EI18]	

washers [CS44] PROC7			
Manual [CS34]Surfaces	No specific measures identified[EI18]		
[CS48]Cleaning [CS47]			
PROC10			
	e basis for the allocation of the identified OCs ar	id RMMs is contained in	
Appendices 1 to 3	. 1		
Section 2.2 Control of envir	onmental exposure		
Product characteristics			
Substance is complex UVCB	[PrC3]. Predominantly hydrophobic [PrC4a].		
Amounts used			
Fraction of EU tonnage used i	n region [A1]	0.1	
Regional use tonnage (tonnes/	year) [A2]	7.5	
Fraction of Regional tonnage		1	
Annual site tonnage (tonnes/ye		7.5	
Maximum daily site tonnage (		380	
Frequency and duration of u		300	
Continuous release [FD2].			
Emission days (days/year) [FI	041	20	
	offluenced by risk management		
Local freshwater dilution factor		10	
Local marine water dilution fa		100	
	ditions affecting environmental exposure	100	
Other given operational con-	untions affecting environmental exposure		
Release fraction to air from pr	ocess (initial release prior to RMM) [OOC4]	0.03	
	from process (initial release prior to RMM)	0.000003	
[OOC5]	nom process (minur release prior to ravivi)	0.000003	
	rocess (initial release prior to RMM) [OOC6]	0	
Technical conditions and me	asures at process level (source) to prevent rele	ase	
Common practices vary across	s sites thus conservative process release estimates	used [TCS1].	
Technical onsite conditions a	and measures to reduce or limit discharges, air	emissions and releases to soil	
D: 1 C	: 1: 1 C 1 / FECD1 1		
	sure is driven by freshwater [TCR1a].	TCD141	
	ved substance to or recover from onsite wastewate	r [TCK14].	
No wastewater treatment required [TCR6].  Treat air emission to provide a typical removal efficiency of (%) [TCR7]		70	
Treat onsite wastewater (prior	0		
required removal efficiency ≥			
	vage treatment plant, provide the required onsite	0	
wastewater removal efficiency			
Organisation measures to prevent/limit release from site			
Do not apply industrial sludge	to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed	
[OMS3].			
Conditions and measures related to municipal sewage treatment plant			
		Taka	
	from wastewater via domestic sewage treatment	96.9	
(%) [STP3]		06.0	
Total efficiency of removal from wastewater after onsite and offsite (domestic			
treatment plant) RMMs (%) [STP4]  Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total  12000000			
wastewater treatment removal (kg/d) [STP6]		1200000	
Assumed domestic sewage treatment plant flow (m³/d) [STP5] 2000			
Conditions and measures related to external treatment of waste for disposal			
Conditions and measures rel		ıl	
	ated to external treatment of waste for disposa		
External treatment and disposa [ETW3].  Conditions and measures rel	ated to external treatment of waste for disposal and of waste should comply with applicable local and ated to external recovery of waste	nd/or national regulations	
External treatment and disposa [ETW3].  Conditions and measures rel	ated to external treatment of waste for disposa al of waste should comply with applicable local an	nd/or national regulations	

#### [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### **Section 3 Exposure Estimation**

#### 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

**Human Health** 

See Appendix 2.a.

**Environment** 

### 1.7 Use in Cleaning Agents – Professional

1.7.1 Exposure Scenario

Section 1 Exposure Scenario Title	
Title	
Use in Cleaning Agents – Professional GES4.2	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19
	Further information on the mapping and allocation of
	PROC codes is contained in Appendix 1.a.
Environmental Release Categories	8a, 8d
Specific Environmental Release Category	ESVOC 8.4b.v1
Processes, tasks, activities covered	<u> </u>

#### rocesses, tasks, activities covered

Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

#### Assessment Method

See Section 3 [AM1]

### Section 2 Operational conditions and risk management measures

•	
Section 2.1 Control of worke	r exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP [OC5]
Concentration of substance in	Covers percentage substance in the product up to 100% (unless stated differently)
product	[G13]
Amounts used	No Limit
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated) [G2]
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]
affecting worker exposure	
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Contributing Scenarios	Specific Risk Management Measures and Operating Conditions (only
	required controls to demonstrate safe use listed)
Filling / preparation of	No specific measures identified[EI18]
equipment from drums or	100 specific incustres facilificate [2110]
containers. [CS45] PROC8b	
Automated process with	No specific measures identified[EI18]
(semi) closed systems.	
[CS93]Use in contained	
systems [CS38] PROC2	
Automated process with	No specific measures identified[EI18]
(semi) closed systems.	
[CS93]Drum/batch transfers	
[CS8]Use in contained	
systems [CS38] PROC3	
Semi Automated process.	No specific measures identified[EI18]
(e.g.: Semi automatic	
application of floor care and	
maintenance products) [CS76]	
PROC4	
Filling / preparation of	No specific measures identified[EI18]
equipment from drums or	
containers. [CS45] PROC8a	N
Manual [CS34]Surfaces	No specific measures identified[EI18]
[CS48]Cleaning	
[CS47]Dipping, immersion	
and pouring [CS4] PROC13	

Cleaning with low-pressure	No specific measures identified[EI18]	
washers [CS42]Rolling,		
Brushing [CS51]no spraying [CS60] PROC10		
Cleaning with high pressure	Avoid carrying out operation for more than 4	hours [OC12]
washers [CS44]Spraying	Tivora carrying out operation for more than 4	nours [OC12]
[CS10]Indoor [OC8] PROC11		
Cleaning with high pressure	Avoid carrying out operation for more than 4	hours [OC12]
washers [CS44]Spraying		
[CS10]Outdoor [OC9]		
PROC11		
Manual [CS34]Surfaces	No specific measures identified[EI18]	
[CS48]Cleaning [CS47]Spraying [CS10]		
PROC10		
	No specific measures identified[EI18]	
trigger sprays, dipping, etc.	The specific incustres radiatinea[E116]	
[CS27]Rolling, Brushing		
[CS51] PROC10		
	No specific measures identified[EI18]	
trigger sprays, dipping, etc.		
[CS27]Rolling, Brushing		
[CS51] PROC10 Application of cleaning	No specific measures identified[EI18]	
products in closed systems	ivo specific measures identified[E118]	
[CS101]Outdoor [OC9]		
PROC4		
Cleaning of medical devices	No specific measures identified[EI18]	
[CS74] PROC4		
	basis for the allocation of the identified OCs	and RMMs is contained in
Appendices 1 to 3 Section 2.2 Control of enviro	nmontal avnosuma	
Product characteristics	mmentai exposure	
	PrC3]. Predominantly hydrophobic [PrC4a].	
1 -	Presj. Predominantly hydrophobic [Pre4a].	
Amounts used		
Fraction of EU tonnage used in		0.1
Regional use tonnage (tonnes/y		7.5
Fraction of Regional tonnage u		0.0005
Annual site tonnage (tonnes/ye		0.0038
Maximum daily site tonnage (k		0.01
Frequency and duration of us	se	
Continuous release [FD2].	42	10.05
Emission days (days/year) [FD		365
	fluenced by risk management	T. a
Local freshwater dilution factor		10
Local marine water dilution fac		100
Other given operational cond	itions affecting environmental exposure	
Release fraction to air from win	de dispersive use (regional only) [OOC7]	0.02
	from wide dispersive use [OOC8]	0.000001
	ide dispersive use (regional only) [OOC9]	0.000001
	asures at process level (source) to prevent re	
	sites thus conservative process release estimat	
	nd measures to reduce or limit discharges, a	
Rick from environmental avec	sure is driven by freshwater [TCR1a].	

No wastewater treatment required [TCR6].	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3]	
Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total	450
wastewater treatment removal (kg/d) [STP6]	

#### Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

2000

#### Conditions and measures related to external recovery of waste

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d) [STP5]

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW3].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### **Section 3 Exposure Estimation**

#### 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

**Human Health** 

See Appendix 2.a.

**Environment** 

# 1.8 Use in Cleaning Agents – Consumer 1.8.1 Exposure Scenario

Section 1 Exposure Scenario	Title	
Title	Tiut	
Use in Cleaning Agents – Cons	umer GES4 3	
	unici GE54.5	
Use Descriptor	[21	
Sector(s) of Use	21	0 (
Product Categories		, 8 (excipient only), 9, 24, 35, 38
		ther information on the mapping and allocation of PC
E : (1D1 C)		les is contained in Appendix 1.b.
Environmental Release Categor		
Specific Environmental Release		VOC 8.4c.v1
Processes, tasks, activities cov		
		use of household products sold as washing and cleaning
products, aerosols, coatings, de	icers, lubricants and air	care products.
Assessment Method		
See Section 3 [AM1].		
Section 2 Operational condit	ons and risk manageme	ent measures
•		
Section 2.1 Control of consur	ner exposure	
Product characteristics		
Physical form of product	liquid	
Vapour pressure	56.300 kPa	
Concentration of substance in		cover concentrations up to 100% [ConsOC1]
product	ciness coner wise states,	to 100,00 control ap to 100,00 [control of ]
Amounts used	Unless otherwise stated	covers use amounts up to13800g [ConsOC2]; covers
	skin contact area up to 8	
Frequency and duration of		covers use frequency up to 4 times per day [ConsOC4];
use/exposure		hours per event [ConsOC14]
		assumes use at ambient temperatures [ConsOC15];
affecting exposure		room [ConsOC11]; assumes use with typical ventilation
3,5003 04 0	[ConsOC8].	7 F
Product Category		nent Measures and Operating Conditions (only
		nonstrate safe use listed)
PC3:Air care productsAir	Unless otherwise stated	l, covers concentrations up to 50% [ConsOC1]; covers
care, instant action (aerosol		/year[ConsOC3]; covers use up to 4 times/day of
sprays)		use event, covers use amounts up to 0.1g [ConsOC2];
spraysy		I household ventilation [ConsOC8]; covers use in room
		[211]; for each use event, covers exposure up to
	0.25hr/event[ConsOC14	41:
	0. <b>2</b> 0m/ <b>0</b> / <b>0</b> m/ constant	.,,
	No specific RMMs iden	tified beyond those OCs stated
DC2 A:	TT 1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
PC3:Air care productsAir		I, covers concentrations up to 50% [ConsOC1]; covers
care, instant action (aerosol		/year[ConsOC3]; covers use up to 4 times/day of
sprays)-pesticidal- excipient		h use event, covers use amounts up to 5g [ConsOC2];
only		l household ventilation [ConsOC8]; covers use in room
		C11]; for each use event, covers exposure up to
	0.25hr/event[ConsOC14	+];
	No specific RMMs iden	tified beyond those OCs stated
	1.0 specific identification	annea segona mose ses suite
PC3:Air care productsAir	Unless otherwise stated	l, covers concentrations up to 10% [ConsOC1]; covers
care, continuous action		ear[ConsOC3]; covers use up to 1 time/on day of
(solid and liquid)		skin contact area up to 35.70 cm2 [ConsOC5]; for each
		amounts up to 0.48g [ConsOC2]; covers use under
		ntilation [ConsOC8]; covers use in room size of
		<u> </u>

	20m3[ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC3:Air care productsAir care, continuous action (solid and liquid)-pesticidal-excipient only	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.70 cm2 [ConsOC5]; for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de- icing productsWashing car window	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de- icing productsPouring into radiator	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de- icing productsLock de- icer	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 214.40 cm2 [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners,	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

metal cleaners )	
	No specific RMMs identified beyond those OCs stated
PC8_n: Biocidal products (excipient use only for solvent products)Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersWaterborne latex wall paint	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners-Solvent rich, high solid, water borne paint	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersAerosol spray can	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinnersRemovers (paint-, glue-, wall paper-, sealant-remover)	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-Fillers and putty	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated

PC9b:Fillers, putties,	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers
plasters, modeling clay Plasters and floor equalizers	use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-Modelling clay	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13];
	No specific RMMs identified beyond those OCs stated
PC9c:Finger paintsFinger paints	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsLiquids	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typcial ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsPastes	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2];
	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release productsSprays	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning	
products (including solvent based products)Laundry and dish washing products	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
products (including solvent based products)Laundry	use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to

based products)Cleaners, liquids (all purpose cleaners, sanitary products,	use[ConsOC4]; covers skin contact area up each use event, covers use amounts up to 27 typical household ventilation [ConsOC8];	g [ConsOC2]; covers use under
floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	20m3[ConsOC11]; for each use event 0.33hr/event[ConsOC14];	
	No specific RMMs identified beyond those OC	's stated
PC35:Washing and cleaning products (including solvent based products)Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Unless otherwise stated, covers concentrations use up to 128 days/year[ConsOC3]; covers use[ConsOC4]; covers skin contact area up each use event, covers use amounts up to 35 typical household ventilation [ConsOC8]; 20m3[ConsOC11]; for each use event 0.17hr/event[ConsOC14];	to 428.00 cm2 [ConsOC5]; for g [ConsOC2]; covers use under covers use in room size of
	No specific RMMs identified beyond those OC	's stated
PC38_n: Welding and soldering products, flux productsNOTE, n_assessment not in TRA	Unless otherwise stated, covers concentrations use up to 365 days/year[ConsOC3]; covers use[ConsOC4]; for each use event, covers use covers use under typical household ventilation size of 20m3[ConsOC11]; for each use 0.1.00hr/event[ConsOC14];	use up to 1 time/on day of amounts up to 12g [ConsOC2]; [ConsOC8]; covers use in room
	No specific RMMs identified beyond those OC	's stated
Additional information on the Appendices 1 to 3	basis for the allocation of the identified OCs ar	nd RMMs is contained in
Section 2.2 Control of enviro	onmental exposure	
Product characteristics		
Substance is complex UVCB [1	PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used		
Fraction of EU tonnage used in	region [A1]	0.1
Regional use tonnage (tonnes/y	vear) [A2]	42
Fraction of Regional tonnage u	sed locally [A3]	0.0005
Annual site tonnage (tonnes/ye	ar) [A5]	0.021
Maximum daily site tonnage (k	g/day) [A4]	0.057
Frequency and duration of us	se	
Continuous release [FD2].		
Emission days (days/year) [FD	4]	365
Environmental factors not in	fluenced by risk management	
Local freshwater dilution factor	t ,	10
Local marine water dilution fac		100
Other given operational cond	litions affecting environmental exposure	
Release fraction to air from wic	de dispersive use (regional only) [OOC7]	0.95
Release fraction to wastewater	from wide dispersive use [OOC8]	0.025
Release fraction to soil from w	ide dispersive use (regional only) [OOC9]	0.025
Conditions and measures rela	ated to municipal sewage treatment plant	<u> </u>
	sure is driven by freshwater [STP7a].	
Estimated substance removal fi (%) [STP3]	rom wastewater via domestic sewage treatment	96.9
	ge (M <sub>Safe</sub> ) based on release following total (kg/d) [STP6]	1800
Assumed domestic sewage treatment plant flow (m³/d) [STP5] 2000		2000

#### Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

#### Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

#### **Section 3 Exposure Estimation**

#### 3.1. Health

Estimated consumer exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[ConsG1]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

#### Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

**Exposure Estimation:** 

**Human Health** 

See Appendix 2.b.

**Environment** 

# 1.9 Use as a Blowing Agent – Industrial 1.9.1Exposure Scenario

	Title	
Section 1 Exposure Scenario	Tiue	
Title		
Use as a Blowing Agent – Indu	strial GES9.1	
Use Descriptor		
Sector(s) of Use		3
Process Categories		1, 2, 3, 8b, 9, 12
S		Further information on the mapping and allocation of
		PROC codes is contained in Appendix 1.a.
Environmental Release Categor	ies	4
Specific Environmental Release Category		ESVOC 4.9.v1
2		E5 VOC 4.7.VI
Processes, tasks, activities cov		
	and flexible foams,	including material transfers, mixing and injection, curing,
cutting, storage and packing.		
Assessment Method		
See Section 3 [AM1].		
Section 2 Operational conditi	ions and risk manag	ement measures
•		
Section 2.1 Control of worker	r exposure	
Product characteristics	0.500	
	Liquid vanour press	ure > 10 kPa at STP [OC5]
		ubstance in the product up to 100% (unless stated differently)
product	[G13]	dostance in the product up to 100% (unless stated differently)
	No Limit	
		res up to 8 hours (unless stated) [G2]
	Assumes use at not >	> 20oC above ambient [G15]
affecting worker exposure		
		ic standard of occupational hygiene has been implemented
	[G1]	
Contributing Scenarios	Specific Risk Mana	
		gement Measures and Operating Conditions (only
		demonstrate safe use listed)
Ü	required controls to	demonstrate safe use listed)
Bulk transfers [CS14]		demonstrate safe use listed)
Bulk transfers [CS14] PROC8b	No specific measure	demonstrate safe use listed) s identified[EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed	required controls to	demonstrate safe use listed) s identified[EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1	No specific measure  No specific measure	demonstrate safe use listed) s identified[EI18] s identified [EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of	No specific measure	demonstrate safe use listed) s identified[EI18] s identified [EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122]	No specific measure  No specific measure	demonstrate safe use listed) s identified[EI18] s identified [EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12	No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[EI18] s identified [EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12	No specific measure  No specific measure	demonstrate safe use listed) s identified[EI18] s identified [EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12	No specific measure No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[E118] s identified [E118] s identified[E118] s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12	No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[E118] s identified [E118] s identified[E118] s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing	No specific measure No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[E118] s identified [E118] s identified[E118] s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12	No specific measure No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[E118] s identified [E118] s identified[E118] s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12	No specific measure	demonstrate safe use listed) s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124]	No specific measure No specific measure No specific measure No specific measure	demonstrate safe use listed) s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12	No specific measure	demonstrate safe use listed) s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67]	No specific measure	demonstrate safe use listed) s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18] s identified[EI18]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12	No specific measure	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed	No specific measure	demonstrate safe use listed) s identified[E118] s identified[E118] s identified[E118] s identified[E118] s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is	No specific measure	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated	No specific measure	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C	No specific measure	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C above ambient temperature)	No specific measure	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7 ] PROC3	No specific measure Provide enhanced m	demonstrate safe use listed) s identified[E118] echanical ventilation by mechanical means [E48]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7 ] PROC3 Intermediate polymer storage	No specific measure Provide enhanced m	demonstrate safe use listed) s identified[E118]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7 ] PROC3 Intermediate polymer storage [CS66]Operation is carried out	No specific measure Provide enhanced m	demonstrate safe use listed) s identified[E118] echanical ventilation by mechanical means [E48]
Bulk transfers [CS14] PROC8b  Mixing operations (closed systems) [CS29] PROC1 Extrusion and expansion of polymer mass [CS122] PROC12 Cutting and shaving [CS134] PROC12 Collection and re-processing of shavings, cuttings, etc [CS123] PROC12 Product packaging [CS124] PROC12 Material storage [CS67] PROC12 Mixing operations (closed systems) [CS29]Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7 ] PROC3 Intermediate polymer storage	No specific measure Provide enhanced m	demonstrate safe use listed) s identified[E118] echanical ventilation by mechanical means [E48]

tommorotura) [OC7 1 DDOC2			
temperature) [OC7 ] PROC3 Centrifuging including	Provide enhanced mechanical ventilation by 1	nachanical means [E48]	
discharging [CS127]Operation	Frovide emilanced mechanical ventulation by i	nechanical means [E46]	
is carried out at elevated			
temperature (> then 20°C			
above ambient temperature)			
[OC7] PROC3			
Drying and storage [CS12] PROC12	No specific measures identified[EI18]		
Semi-bulk packaging [CS128] PROC8b	No specific measures identified[EI18]		
Treatment by heating	Provide enhanced mechanical ventilation by I	nechanical means [E48]	
[CS129]Operation is carried			
out at elevated temperature (>			
then 20°C above ambient			
temperature) [OC7] PROC12	No specific measures identified[EI18]		
Drying and storage [CS12] PROC12	1	1 : 1	
Article formation in mould [CS130]Operation is carried	Provide enhanced mechanical ventilation by i	nechanical means [E48]	
out at elevated temperature (>			
then 20°C above ambient			
temperature) [OC7] PROC12			
Cutting by heated wire	No specific measures identified[EI18]		
[CS131]Manual [CS34]	1		
PROC12			
Mixing operations (closed systems) [CS29] PROC3	No specific measures identified[EI18]		
Drum and small package	No specific measures identified[EI18]		
filling [CS6]Filling /			
preparation of equipment from			
drums or containers. [CS45]			
PROC9	No anasifia massamas idantifia d[E]10]		
Foaming [CS132] PROC12 Compression [CS133]	No specific measures identified[EI18]  No specific measures identified[EI18]		
PROC12	1		
Cutting by heated wire [CS131] PROC12	No specific measures identified[EI18]		
	basis for the allocation of the identified OCs	and RMMs is contained in	
Appendices 1 to 3	nmontal armaguna		
Section 2.2 Control of enviro	nmentai exposure		
Product characteristics			
•	PrC3]. Predominantly hydrophobic [PrC4a].		
Amounts used			
Fraction of EU tonnage used in	region [A1]	0.1	
Regional use tonnage (tonnes/year) [A2] 1500		1500	
Fraction of Regional tonnage used locally [A3]			
Annual site tonnage (tonnes/year) [A5] 1500		1500	
Maximum daily site tonnage (kg/day) [A4] 15000		15000	
Frequency and duration of use			
Continuous release [FD2].			
Emission days (days/year) [FD4] 100			
Environmental factors not in			
Local freshwater dilution factor		10	
Local marine water dilution factor [EF2] 100			
	itions affecting environmental exposure	1	
<u> </u>	, <sub>p</sub>		

	Γ
Release fraction to air from process (initial release prior to RMM) [OOC4]	1.0
Release fraction to wastewater from process (initial release prior to RMM)	0.00003
[OOC5]	
Release fraction to soil from process (initial release prior to RMM) [OOC6]	0
Technical conditions and measures at process level (source) to prevent rele	ase
Common practices vary across sites thus conservative process release estimates	used [TCS1].
Technical onsite conditions and measures to reduce or limit discharges, air	emissions and releases to soil
Risk from environmental exposure is driven by agricultural soil [TCR1f].	
	ETCD 1.43
Prevent discharge of undissolved substance to or recover from onsite wastewate	er [TCR14].
No wastewater treatment required [TCR6].	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	0
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incin	erated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment	96.9

96.9

2500000

# Conditions and measures related to external treatment of waste for disposal

Total efficiency of removal from wastewater after onsite and offsite (domestic

Maximum allowable site tonnage (M<sub>Safe</sub>) based on release following total

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

# Conditions and measures related to external recovery of waste

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d) [STP4]

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

# **Section 3 Exposure Estimation**

treatment plant) RMMs (%) [STP4]

wastewater treatment removal (kg/d) [STP6]

# 3.1. Health

(%) [STP3]

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

### **Human Health**

See Appendix 2.a.

**Environment** See PETRORISK file (Annex III)..

# 1.10 Use in Agrochemicals – Professional 1.10.1 Exposure Scenario

1.10.1 Exposure Scenario			
Section 1 Exposure Scenario	Title		
Title			
Use in Agrochemicals – Profes	sional GES11.2		
Use Descriptor			
Sector(s) of Use	<u> </u>		
Process Categories		1, 2, 4, 8a, 8b, 11, 13	
		Further information on the mapping and allocation of	
		PROC codes is contained in Appendix 1.a.	
Environmental Release Categor	ries	8a, 8d	
Specific Environmental Release	e Category	ESVOC 8.11a.v1	
Processes, tasks, activities cov	rered		
		manual or machine spraying, smokes and fogging; including	
equipment clean-downs and dis			
Assessment Method	1		
See Section 3 [AM1].			
Section 2 Operational condit	ions and risk manac	sement measures	
Section 2 Operational condit	ions and risk manag	cincin incasures	
Section 2.1 Control of worke	r exposure		
Product characteristics	- CAPOSUI C		
Physical form of product	Liquid vanour press	sure > 10 kPa at STP [OC5]	
Concentration of substance in		ubstance in the product up to 100% (unless stated differently)	
product	[G13]	dostance in the product up to 10070 (unless stated differently)	
Amounts used	No Limit		
		res up to 8 hours (unless stated) [G2]	
Other Operational Conditions		> 20oC above ambient [G15]	
affecting worker exposure	1 issumes use at not	2000 above amorent [G13]	
uncetting worker exposure	Assumes a good basic standard of occupational hygiene has been implemented		
	[G1]		
Contributing Scenarios	Specific Risk Management Measures and Operating Conditions (only		
		demonstrate safe use listed)	
	•	,	
Transfer from/pouring from	No specific measure	s identified[EII8]	
containers [CS22] PROC8b	УIС.	'1 ('C 15510]	
Mixing and blending [CS23] PROC4	No specific measure	s identified[E118]	
	A : 1 : 4	tif	
Spraying/fogging by manual	Avoid carrying out of	operation for more than 4 hours [OC12]	
application [CS24] PROC11	A : 1 :		
Spraying/fogging by machine	Avoid carrying out of	operation for more than 4 hours [OC12]	
application [CS25] PROC11 Ad hoc manual application via	No anosifia massura	a identified[E110]	
trigger sprays, dipping, etc.	No specific measure	s identified[E118]	
[CS27] PROC13			
Clean-down and maintenance	No specific measure	s identified[FI18]	
of equipment [CS26] PROC8a	specific incasure	S Identifica[E110]	
Disposal of wastes [CS28]	No specific measures identified[EI19]		
PROC8a	No specific measures identified[EI18]		
Material storage [CS67]	No specific measures identified[EI18]		
PROC1	1.0 specific mousure		
Material storage [CS67]	No specific measures identified[EI18]		
PROC2	The specific measures identified[Dife]		
	basis for the allocati	ion of the identified OCs and RMMs is contained in	
Appendices 1 to 3	j unocui		
Section 2.2 Control of enviro	nmental exposure		
Product characteristics	1		
	DrC21 Dradominant	y hydronhobia [DrC4a]	
Substance is complex UVCB [I	103]. rieuominanti	y myarophoote [F1C4a].	

<del>_</del>
0.1
10
0.002
0.02
0.055
365
10
100
0.9
0.01
0.09
ease
s used [TCS1].
r emissions and releases to soil
chiissions and releases to son
N/A
0
0
nerated, contained or reclaimed
lerated, contained of recianned
96.9
96.9
2100
2000
al
and/or national regulations
*/ 1 1,
and/or national regulations
and RMMs is contained in
and KMMs is contained in
lentified risk management
dentified risk management
lentified risk management
dentified risk management osure with the Petrorisk model

Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation: Human Health See Appendix 2.a. Environment See PETRORISK file (Annex III)...

# 1.11 Use as a Fuel – Industrial 1.11.1 Exposure Scenario

1.11.1 Exposure Scenario			
Section 1 Exposure Scenario	Title		
Title	10.1		
Use as a Fuel – Industrial GES	12.1		
Use Descriptor			
Sector(s) of Use		3	
Process Categories		1, 2, 3, 8a, 8b, 16  Further information on the mapping and allocation of	
Environmental Release Categor	ries	PROC codes is contained in Appendix 1.a. 7	
Specific Environmental Release		ESVOC 7.12a.v1	
Processes, tasks, activities cov	vered		
	additive) and includ	es activities associated with its transfer, use, equipment	
Assessment Method	uste.		
See Section 3 [AM1].			
Section 2 Operational condit	ions and risk manag	rement megsures	
Section 2 Operational condit	ions and risk manag	cincii incasui es	
Section 2.1 Control of worke	r exnosure		
Product characteristics	САРОЗИГС		
Physical form of product	Liquid vanour press	ure < 10 kPa at STP [OC5]	
Concentration of substance in		ubstance in the product up to 100% (unless stated differently)	
product	[G13]	dostance in the product up to 10070 (unless stated differently)	
Amounts used	No Limit		
		res up to 8 hours (unless stated) [G2]	
Other Operational Conditions affecting worker exposure	Covers daily exposures up to 8 hours (unless stated) [G2] Assumes use at not > 20oC above ambient [G15]		
	Assumes a good basic standard of occupational hygiene has been implemented [G1]		
Contributing Scenarios	Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)		
Bulk transfers [CS14] PROC8b	No specific measure	s identified[EI18]	
Drum/batch transfers [CS8] PROC8b	No specific measure	s identified[EI18]	
General exposures (closed	No specific measure	s identified[EI18]	
systems) [CS15]Use in			
contained batch processes [CS37] PROC1			
General exposures (closed	No specific measure	s identified[EI18]	
systems) [CS15]Use in	-		
contained batch processes			
[CS37] PROC2			
General exposures (closed systems) [CS15]Use in	No specific measure	s identified[EI18]	
contained batch processes [CS37] PROC3			
General exposures (closed systems) [CS15] PROC1	No specific measures identified[EI18]		
General exposures (closed systems) [CS15] PROC2	No specific measures identified[EI18]		
General exposures (closed	No specific measure	s identified[EI18]	
systems) [CS15](closed systems) [CS107] PROC16			
General exposures (closed	No specific measure	s identified[EI18]	
systems) [CS15](closed systems) [CS107] PROC3			

Equipment cleaning and	No specific measures identified[EI18]			
maintenance [CS39] PROC8a	N 'C '1 'C 1FD1101			
Vessel and container cleaning [CS103] PROC8a	No specific measures identified[EI18]			
Material storage [CS67] PROC1	No specific measures identified[EI18]			
Material storage [CS67] PROC2	No specific measures identified[EI18]			
	basis for the allocation of the identified OCs an	nd RMMs is contained in		
Appendices 1 to 3	, ,			
Section 2.2 Control of enviro	onmental exposure			
Product characteristics				
Substance is complex UVCB [	PrC3]. Predominantly hydrophobic [PrC4a].			
Amounts used				
Fraction of EU tonnage used in	region [A1]	0.1		
Regional use tonnage (tonnes/y	•	4		
Fraction of Regional tonnage u	,	1		
Annual site tonnage (tonnes/ye	• • •	4		
Maximum daily site tonnage (k		200		
Frequency and duration of u				
Continuous release [FD2].				
Emission days (days/year) [FD	4]	20		
Environmental factors not in	fluenced by risk management			
Local freshwater dilution facto	r [EF1]	10		
Local marine water dilution fac		100		
Other given operational cond	litions affecting environmental exposure			
	ocess (initial release prior to RMM) [OOC4]	0.0025		
Release fraction to wastewater from process (initial release prior to RMM)  [OOC5]  0.00001				
Release fraction to soil from pr	rocess (initial release prior to RMM) [OOC6]	0		
Technical conditions and mea	asures at process level (source) to prevent relea	ase		
Common practices vary across	sites thus conservative process release estimates	used [TCS1].		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil				
	sure is driven by freshwater [TCR1a].			
No wastewater treatment requi		05		
	typical removal efficiency of (%) [TCR7] to receiving water discharge) to provide the	95		
required removal efficiency ≥ (		V .		
If discharging to domestic sewage treatment plant, provide the required onsite 0				
wastewater removal efficiency				
Organisation measures to prevent/limit release from site				
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].				
Conditions and measures related to municipal sewage treatment plant				
Estimated substance removal fi (%) [STP3]	rom wastewater via domestic sewage treatment	96.9		
Total efficiency of removal fro treatment plant) RMMs (%) [S	m wastewater after onsite and offsite (domestic TP4]	96.9		
Maximum allowable site tonna wastewater treatment removal	5500000			
Assumed domestic sewage treatment plant flow (m³/d) [STP5] 2000				
Conditions and measures related to external treatment of waste for disposal				

Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].

# Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated [ERW3].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

# **Section 3 Exposure Estimation**

# 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

**Exposure Estimation:** 

**Human Health** 

See Appendix 2.a.

Environment

See PETRORISK file (Annex III)..

# 1.12 Use as a Fuel – Professional

1.12.1 Exposure Scenario

1.12.1 Exposure Scenari			
Section 1 Exposure Scenario	Title		
Title			
Use as a Fuel – Professional G	ES12.2		
Use Descriptor			
Sector(s) of Use	22		
Process Categories		1, 2, 3, 8a, 8b, 16	
-		Further information on the mapping and allocation of	
		PROC codes is contained in Appendix 1.a.	
Environmental Release Catego	ries	9a, 9b	
Specific Environmental Releas		ESVOC 9.12b.v1	
Processes, tasks, activities co			
		es activities associated with its transfer, use, equipment	
maintenance and handling of w		es activities associated with its transfer, use, equipment	
Assessment Method	rusic.		
See Section 3 [AM1].		,	
Section 2 Operational condit	tions and risk manag	gement measures	
Section 2.1 Control of worke	er exposure		
Product characteristics		40.1 P GTP 50.GZ	
Physical form of product		sure > 10 kPa at STP [OC5]	
Concentration of substance in	1 0	ubstance in the product up to 100% (unless stated differently)	
product	[G13]		
Amounts used	No Limit		
Frequency and duration of use		res up to 8 hours (unless stated) [G2]	
Other Operational Conditions	Assumes use at not	> 20oC above ambient [G15]	
affecting worker exposure			
	Assumes a good bas	ic standard of occupational hygiene has been implemented	
	[G1]		
Contributing Scenarios		gement Measures and Operating Conditions (only	
	required controls to	demonstrate safe use listed)	
Bulk transfers [CS14]	No specific measure	sidentified[FI18]	
PROC8b	140 specific measure	s identifica <sub>[D110]</sub>	
Drum/batch transfers [CS8]	No specific measure	sidentified[EI18]	
PROC8b	Tvo specific incusure	s identifica <sub>[D110]</sub>	
General exposures [CS1]	No specific measure	sidentified[FI18]	
PROC8b	1 to specific incusure	s identifica <sub>[E110]</sub>	
General exposures (closed	No specific measure	s identified[FI18]	
systems) [CS15] PROC1	Two specific incasure	s identified[E116]	
General exposures (closed	No specific measure	s identified[FI18]	
systems) [CS15] PROC2	Two specific incasure	s identified[E116]	
General exposures (closed	No specific measure	s identified[FI18]	
systems) [CS15](closed	Two specific incasure	s identifica[Eff8]	
systems) [CS107] PROC3			
General exposures (closed	No an asifia an assumas identifical[Fi10]		
systems) [CS15](closed	No specific measures identified[EI18]		
systems) [CS19](closed systems) [CS19] PROC16			
Equipment cleaning and	No specific measures identified[EI18]		
	no specific measures identified[Eff8]		
Vessel and container cleaning	maintenance [CS39] PROC8a Vessel and container cleaning No specific measures identified [EI18]		
[CS103] PROC8a	Two specific illeasure	s identification	
DD CC1			
PROC1	hasis for the allower	ion of the identified OCs and DMMs is contained in	
Additional information on the	basis for the allocate	ion of the identified OCs and RMMs is contained in	
	•	ion of the identified OCs and RMMs is contained in	

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region [A1]	0.1
Regional use tonnage (tonnes/year) [A2]	10
Fraction of Regional tonnage used locally [A3]	0.0005
Annual site tonnage (tonnes/year) [A5]	0.005
Maximum daily site tonnage (kg/day) [A4]	0.014
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year) [FD4]	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional only) [OOC7]	0.01
Release fraction to wastewater from wide dispersive use [OOC8]	0.00001
Release fraction to soil from wide dispersive use (regional only) [OOC9]	0.00001
Technical conditions and measures at process level (source) to prevent rele	ase
Common practices vary across sites thus conservative process release estimates	
Technical onsite conditions and measures to reduce or limit discharges, air	
Risk from environmental exposure is driven by freshwater [TCR1a].	
No wastewater treatment required [TCR6].	DT/A
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	N/A 0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ (%) [TCR8]	U
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	o de la companya de l
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
	Taka
Estimated substance removal from wastewater via domestic sewage treatment	96.9
[%] [STP3]	96.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96.9
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total	600
wastewater treatment removal (kg/d) [STP6]	
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	2000
Conditions and measures related to external treatment of waste for disposa	1
Combustion emissions limited by required exhaust emission controls [ETW1].	
in regional exposure assessment [ETW2].	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generat	
Additional information on the basis for the allocation of the indentified OCs of	and RMMs is contained in
Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet	
Section 3 Exposure Estimation	
3.1. Health  Estimated workplace exposures are not expected to exceed DNELs when the id-	entified risk management
Estimated workplace exposures are not expected to exceed DNELs when the idemeasures are adopted.[G8]	enuncu risk management
3.2. Environment	
The Hydrocarbon Block Method has been used to calculate environmental expo	sure with the Petrorisk model
[EE2].	
•	

# Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

# **Exposure Estimation:**

Human Health
See Appendix 2.a.
Environment
See PETRORISK file (Annex III)...

# 1.13 Use as a Fuel – Consumer

# 1.13.1 Exposure Scenario

Section 1 Exposure Scenario	Title		
Title			
Use as a Fuel – Consumer GES12.3			
Use Descriptor			
Sector(s) of Use		21	
Product Categories		13	
		Further information on the mapping and allocation of PC	
		codes is contained in Appendix 1.b.	
Environmental Release Categor		9a, 9b	
Specific Environmental Release		ESVOC 9.12c.v1	
Processes, tasks, activities cov			
Covers consumer uses in liquid	fuels.		
Assessment Method			
See Section 3 [AM1].			
Section 2 Operational condit	ions and risk manag	gement measures	
Section 2.1 Control of consu	ner exposure		
Product characteristics			
Physical form of product	liquid		
Vapour pressure	56.3 kPa	1000/10 0017	
Concentration of substance in	Unless otherwise sta	ted, cover concentrations up to 100% [ConsOC1]	
product	I Inlaga oth omrrigo etc	ited, covers use amounts up to 37500g [ConsOC2]; covers	
Amounts used		to 420cm2 [ConsOC5]	
Frequency and duration of		ted, covers use frequency up to 1 times per day [ConsOC4];	
use/exposure		to 2 hours per event [ConsOC14]	
		ited assumes use at ambient temperatures [ConsOC15];	
affecting exposure	assumes use in a 20 m3 room [ConsOC11]; assumes use with typical ventilation		
John Start Comme	[ConsOC8].	(v (v ), wasansa saa waa sygeessa veessaan	
Product Category		gement Measures and Operating Conditions (only	
		demonstrate safe use listed)	
PC13:FuelsLiquid -	Unless otherwise sta	tted, covers concentrations up to 100% [ConsOC1]; covers	
subcategories added:		ar[ConsOC3]; covers use up to 1 time/on day of	
Automotive Refuelling		ers skin contact area up to 210.00 cm2 [ConsOC5]; for each	
		e amounts up to 37500g [ConsOC2]; covers outdoor use	
		s use in room size of 100m3[ConsOC11]; for each use event,	
		to 0.05hr/event[ConsOC14];	
	No specific RMMs of	developed beyong those OCs stated	
PC13:FuelsLiquid -	Unless otherwise sta	tted, covers concentrations up to 100% [ConsOC1]; covers	
subcategories added: Scooter		ar[ConsOC3]; covers use up to 1 time/on day of	
Refuelling		ers skin contact area up to 210.00 cm2 [ConsOC5]; for each	
		e amounts up to 3750g [ConsOC2]; covers outdoor use	
		s use in room size of 100m3[ConsOC11]; for each use event,	
		to 0.03hr/event[ConsOC14];	
	*	developed beyong those OCs stated	
PC13:FuelsLiquid -		tted, covers concentrations up to 100% [ConsOC1]; covers	
subcategories added: Garden		ar[ConsOC3]; covers use up to 1 time/on day of	
Equipment - Use		each use event, covers use amounts up to 750g [ConsOC2];	
		ConsOC12]; covers use in room size of 100m3[ConsOC11];	
		overs exposure up to 2.00hr/event[ConsOC14]; developed beyong those OCs stated	
	-		
PC13:FuelsLiquid		tted, covers concentrations up to 100% [ConsOC1]; covers	
(subcategories added): Garden	use up to 26 days/ye	ar[ConsOC3]; covers use up to 1 time/on day of	

	1		
equipment - Refueling use[ConsOC4]; covers skin contact area up to 420.00 cm2 [ConsOC5]; for each			
	use event, covers use amounts up to 750g [ConsOC2]; Covers use in a one car		
	garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to		
	0.03hr/event[ConsOC14];		
	No specific RMMs developed beyong those OCs stated		
PC13:FuelsLiquid -	Unless otherwise stated, covers concentrations u		
	use up to 52 days/year[ConsOC3]; covers use up		
	use[ConsOC4]; covers skin contact area up to 2		
	use event, covers use amounts up to 100g [Cons		
	household ventilation [ConsOC8]; covers use in		
	for each use event, covers exposure up to 0.01hi		
DC12.Evala Liavid	No specific RMMs developed beyong those OC		
PC13:FuelsLiquid (subcategories added): Home	Unless otherwise stated, covers concentrations use up to 365 days/year[ConsOC3]; covers use		
space heater fuel	use[ConsOC4]; covers skin contact area up to 2		
space freater ruer	use event, covers use amounts up to 3000g [Cor		
	household ventilation [ConsOC8]; covers use in		
	for each use event, covers exposure up to 0.03hi		
	No specific RMMs developed beyong those OC	S stated	
	basis for the allocation of the identified OCs an	ıd RMMs is contained in	
Appendices 1 to 3 Section 2.2 Control of enviro	onmental exposure		
Product characteristics			
	PrC3]. Predominantly hydrophobic [PrC4a].		
Amounts used	Treatment hydrophosic [176 kg].		
	ragion [A1]	0.1	
Fraction of EU tonnage used in Regional use tonnage (tonnes/y		720	
Fraction of Regional tonnage u		0.0005	
Annual site tonnage (tonnes/ye	,	0.36	
Maximum daily site tonnage (k		0.99	
Frequency and duration of us	se		
Continuous release [FD2].		365	
Emission days (days/year) [FD Environmental factors not in	fluenced by risk management	303	
Local freshwater dilution facto	•	10	
Local marine water dilution factor		100	
	litions affecting environmental exposure	100	
Other given operational cond	ntions affecting environmental exposure		
Release fraction to air from wi	de dispersive use (regional only) [OOC7]	0.01	
	from wide dispersive use [OOC8]	0.00001	
	ride dispersive use (regional only [OOC9]	0.00001	
	ated to municipal sewage treatment plant	0.00001	
	sure is driven by freshwater [STP7a].		
	rom wastewater via domestic sewage treatment	96.9	
(%) [STP3]			
Maximum allowable site tonna	ige (M <sub>Safe</sub> ) based on release following total	43000	
wastewater treatment removal (kg/d) [STP6]			
	atment plant flow (m <sup>3</sup> /d) [STP5]	2000	
	ated to external treatment of waste for disposa		
	by required exhaust emission controls [ETW1].	Combustion emissions considered	
in regional exposure assessmer			
	ated to external recovery of waste iring use and no waste of the substance is generat	ed [FRW3]	
	basis for the allocation of the indentified OCs a		
	ion 13 - "LocalCSR" worksheet		
•			

# Section 3 Exposure Estimation

# 3.1. Health

Estimated consumer exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[ConsG1]

# 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation: Human Health See Appendix 2.b. Environment See PETRORISK file (Annex III)...

# 1.14 Use as Functional Fluids – Industrial

1.14.1 Exposure Scenario

1.14.1 Exposure Scenario			
Section 1 Exposure Scenario	Title		
Title			
Use as Functional Fluids – Indu	ustrial GES13.1		
Use Descriptor			
Sector(s) of Use		3	
Process Categories		1, 2, 3, 4, 8a, 8b, 9	
		Further information on the mapping and allocation of	
		PROC codes is contained in Appendix 1.a.	
Environmental Release Catego	ries	7	
Specific Environmental Releas	e Category	ESVOC 7.13a.v1	
Processes, tasks, activities cov	vered		
		coolants, insulators, refrigerants, hydraulic fluids in	
industrial equipment including			
Assessment Method			
See Section 3 [AM1].			
Section 2 Operational condit	ions and risk manac	soment maggures	
Section 2 Operational condition	ions and risk manag	gement measures	
Section 2.1 Control of worke	M OVPOSIINO		
Product characteristics	exposure		
Physical form of product	Liquid von our proce	10 l-Do at CTD [OC5]	
Concentration of substance in		sure > 10 kPa at STP [OC5] ubstance in the product up to 100% (unless stated differently)	
product	[G13]	ubstance in the product up to 100% (unless stated differently)	
F	No Limit		
Amounts used	1 1	4. 01 (1 4.4.1) [C2]	
		res up to 8 hours (unless stated) [G2]	
Other Operational Conditions	Assumes use at not -	> 20oC above ambient [G15]	
affecting worker exposure	A 11	: -4ddd	
	Assumes a good bas	ic standard of occupational hygiene has been implemented	
Cantributing Campuing	L 3	aroment Measures and On sucting Conditions (only	
Contributing Scenarios		gement Measures and Operating Conditions (only	
	requirea controls to	demonstrate safe use listed)	
Bulk transfers [CS14](closed	No specific measure	s identified[EI18]	
systems) [CS107] PROC1			
Bulk transfers [CS14](closed	No specific measure	s identified[EI18]	
systems) [CS107] PROC2			
Drum/batch transfers [CS8]	No specific measure	s identified[EI18]	
PROC8b			
Filling of articles/equipment	No specific measure	s identified[EI18]	
[CS84](closed systems)			
[CS107] PROC9			
Filling / preparation of	No specific measure	s identified[EI18]	
equipment from drums or			
containers. [CS45] PROC8a			
General exposures (closed	No specific measures identified[EI18]		
systems) [CS15] PROC2			
General exposures (open	Provide enhanced mechanical ventilation by mechanical means [E48]		
systems) [CS16] PROC4			
Remanufacture of reject	No specific measures identified[EI18]		
articles [CS19] PROC9			
Equipment maintenance	No specific measure	s identified[EI18]	
[CS5] PROC8a			
Material storage [CS67]	No specific measure	s identified[EI18]	
PROC1			
Material storage [CS67]			
PROC2			
		•	
	basis for the allocati	ion of the identified OCs and RMMs is contained in	

Annaudiose 1 to 2	
Appendices 1 to 3 Section 2.2 Control of environmental exposure	
-	
Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region [A1]	0.1
Regional use tonnage (tonnes/year) [A2]	9200
Fraction of Regional tonnage used locally [A3]	0.0011
Annual site tonnage (tonnes/year) [A5]	10
Maximum daily site tonnage (kg/day) [A4]	500
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year) [FD4]	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Other given operational conditions affecting environmental exposure	•
Release fraction to air from process (initial release prior to RMM) [OOC4]	0.01
Release fraction to wastewater from process (initial release prior to RMM) [OOC5]	0.0003
Release fraction to soil from process (initial release prior to RMM) [OOC6]	0.001
Technical conditions and measures at process level (source) to prevent release	ase
Common practices vary across sites thus conservative process release estimates	used [TCS1].
Technical onsite conditions and measures to reduce or limit discharges, air	
Risk from environmental exposure is driven by freshwater sediment [TCR1b].	
Prevent discharge of undissolved substance to or recover from onsite wastewate	er [TCR14].
No wastewater treatment required [TCR6].	T.
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	0
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency $\geq$ (%) [TCR8]  If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of ≥ (%) [TCR10]	0
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine [OMS3].	erated, contained or reclaimed
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]	96.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	96.9
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total wastewater treatment removal (kg/d) [STP6]	4300000
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	2000
Conditions and measures related to external treatment of waste for disposa	.l
External treatment and disposal of waste should comply with applicable local ar [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local a [ERW1].	nd/or national regulations
Additional information on the basis for the allocation of the indentified OCs a Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet	and RMMs is contained in
Section 3 Exposure Estimation	
3.1. Health	

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

# 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation: Human Health See Appendix 2.a. Environment See PETRORISK file (Annex III)...

# 1.15 Use as Functional Fluids – Professional

1.15.1 Exposure Scenario

1.15.1 Exposure Scenario					
Section 1 Exposure Scenario	Title				
Title					
Use as Functional Fluids – Pro	fessional GES13.2				
Use Descriptor					
Sector(s) of Use		22			
Process Categories		1, 2, 3, 8a, 9, 20			
		Further information on the mapping and allocation of			
		PROC codes is contained in Appendix 1.a.			
Environmental Release Catego	ries	9a, 9b			
Specific Environmental Releas		ESVOC 9.13b.v1			
Processes, tasks, activities cov	<u> </u>	26 / 06 ///2017			
		insulators, refrigerants, hydraulic fluids in professional			
equipment including maintenar					
Assessment Method	ice and related mater	at transicis.			
See Section 3 [AM1].					
Section 2 Operational condit	ions and risk manag	gement measures			
Section 2.1 Control of worke	r exposure				
Product characteristics					
Physical form of product		sure > 10 kPa at STP [OC5]			
Concentration of substance in	Covers percentage s	ubstance in the product up to 100% (unless stated differently)			
product	[G13]				
Amounts used	No Limit				
Frequency and duration of use	Covers daily exposu	res up to 8 hours (unless stated) [G2]			
Other Operational Conditions	Assumes use at not >	> 20oC above ambient [G15]			
affecting worker exposure					
	Assumes a good bas	ic standard of occupational hygiene has been implemented			
	[G1]	1 75 1			
Contributing Scenarios	Specific Risk Mana	gement Measures and Operating Conditions (only			
J		demonstrate safe use listed)			
D // / 1 / C [CC0]	) . C	'1 .'C IFD101			
Drum/batch transfers [CS8]	No specific measure	s identified[E118]			
PROC8a	) . C	11 (C 1FD10)			
Transfer from/pouring from	No specific measure	s identified[E118]			
containers [CS22] PROC9	37 .0	11 .' ( 15771.03			
Filling / preparation of	No specific measure	s identified[EII8]			
equipment from drums or					
containers. [CS45] PROC9		11 .10 15771.03			
General exposures (closed	No specific measure	s identified[EII8]			
systems) [CS15] PROC1	37 .0	11 .' ( 15771.03			
General exposures (closed	No specific measure	s identified[EII8]			
systems) [CS15] PROC2		11 17 1577403			
General exposures (closed	No specific measure	s identified[EI18]			
systems) [CS15] PROC3					
General exposures (open No specific measures identified[EI18]					
systems) [CS16] PROC20					
Remanufacture of reject Provide enhanced mechanical ventilation by mechanical means [E48]					
articles [CS19] PROC9					
Remanufacture of reject No specific measures identified[EI18]					
articles [CS19] PROC9					
Equipment maintenance [CS5] PROC8a	No specific measure	s identified[EI18]			
11 000   1 100 004		- : 1			
	No specific measure	No specific measures identified[EI18]			
Material storage [CS67] PROC1	No specific measure	s identified[E118]			
Material storage [CS67]	No specific measure  No specific measure				
Material storage [CS67] PROC1					

Additional information on the basis for the allocation of the identified OCs an	nd RMMs is contained in
Appendices 1 to 3 Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region [A1]	0.1
Regional use tonnage (tonnes/year) [A2]	50
Fraction of Regional tonnage used locally [A3]	0.0005
Annual site tonnage (tonnes/year) [A5]	0.025
Maximum daily site tonnage (kg/day) [A4]	0.068
Frequency and duration of use	0.000
Continuous release [FD2].	
Emission days (days/year) [FD4]	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional only) [OOC7]	0.05
Release fraction to wastewater from wide dispersive use [OOC8]	0.025
Release fraction to soil from wide dispersive use (regional only) [OOC9]	0.025
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates	
Technical onsite conditions and measures to reduce or limit discharges, air	
Risk from environmental exposure is driven by freshwater [TCR1a].	
No wastewater treatment required [TCR6].	INT/A
Treat air emission to provide a typical removal efficiency of (%) [TCR7]  Treat onsite wastewater (prior to receiving water discharge) to provide the	N/A 0
required removal efficiency $\geq$ (%) [TCR8]	U
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	erated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
	Tak a
Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3] Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	90.9
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total	2000
wastewater treatment removal (kg/d) [STP6]	
Assumed domestic sewage treatment plant flow (m³/d) [STP5]	2000
Conditions and measures related to external treatment of waste for disposa	1
External treatment and disposal of waste should comply with applicable local ar	
[ETW3].	
Conditions and measures related to external recovery of waste	1/ 1 1 1
External recovery and recycling of waste should comply with applicable local a [ERW1].	
Additional information on the basis for the allocation of the indentified OCs a Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet	and RMMs is contained in
Section 3 Exposure Estimation	
3.1. Health	

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

# 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

Exposure Estimation: Human Health See Appendix 2.a. Environment See PETRORISK file (Annex III)...

# 1.16 Other Consumer Uses – Consumer

1.16.1 Exposure Scenario

1.16.1 Exposure Scenario		
Section 1 Exposure Scenario Title		
Title		
Other Consumer Uses – Consumer GES16.3		
Use Descriptor		
\ /	21	
$\boldsymbol{\varepsilon}$	28, 39 Example 28, 39	namina and allegation CDC
	Further information on the n codes is contained in Appena	napping and allocation of PC
	<u>coaes is containea in Appena</u> 8a, 8d	11.U.
	ESVOC 8.16.v1	
Processes, tasks, activities covered	20,000 0.10.11	_
Consumer uses not covered in consumer examples li	sted above e gouse as a carrie	er in cosmetics/nersonal care
products, perfumes and fragrances. Note: For cosmet		
for the environment under REACH as human health		
Assessment Method		
See Section 3 [AM1].		
Section 2 Operational conditions and risk manag	ement measures	
Section 2.1 Control of consumer exposure		
Section 2.2 Control of environmental exposure		
Product characteristics		
Substance is complex UVCB [PrC3]. Predominantly	hydrophobic [PrC4a].	
Amounts used		
Fraction of EU tonnage used in region [A1]		0.1
Regional use tonnage (tonnes/year) [A2]		160
Fraction of Regional tonnage used locally [A3]	(	0.0005
Annual site tonnage (tonnes/year) [A5]	(	0.081
Maximum daily site tonnage (kg/day) [A4]	(	0.022
Frequency and duration of use		
Continuous release [FD2].		
Emission days (days/year) [FD4]		365
Environmental factors not influenced by risk mar	nagement	
Local freshwater dilution factor [EF1]		10
Local marine water dilution factor [EF2]		100
Other given operational conditions affecting envir	onmental exposure	
Release fraction to air from wide dispersive use (regi	* /	0.95
Release fraction to wastewater from wide dispersive	use [OOC8]	0.025
Release fraction to soil from wide dispersive use (reg	gional only) [OOC9]	0.025
Conditions and measures related to municipal sev	vage treatment plant	
Risk from environmental exposure is driven by fresh	water sediment [STP7b].	
Estimated substance removal from wastewater via do	omestic sewage treatment	96.9
(%) [STP3]	1 0.11	5000
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on re	lease following total	5200
wastewater treatment removal (kg/d) [STP6] Assumed domestic sewage treatment plant flow (m <sup>3</sup> /	d) [STD5]	2000
		2000
Conditions and measures related to external treat External treatment and disposal of waste should com		/or national regulations
[ETW3].	pry wrui applicable local and	or national regulations
Conditions and measures related to external reco	very of waste	
External recovery and recycling of waste should com		l/or national regulations
and the second s	r J	

# [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

# **Section 3 Exposure Estimation**

#### 3.1. Health

Estimated consumer exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[ConsG1]

# 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

# 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

# **Exposure Estimation:**

#### **Human Health**

See Appendix 2.a.

#### **Environment**

See PETRORISK file (Annex III)..

# 1.17 Use in Laboratories – Industrial

1.17.1 Exposure Scenario

Title Use in Laboratories – Industrial GES17.1 Use Descriptor  Sector(s) of Use  Process Categories  Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories  Environmental Release Categories  2, 4  Specific Environmental Release Category  Not Applicable  Processes, tasks, activities covered Use of the substance within laboratory settings, including material transfers and equipment cleaning.  Assessment Method  See Section 3 (AMI).  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure  Product characteristics  Physical form of product Concentration of substance in product Concentration of substance in Ocovers percentage substance in the product up to 100% (unless stated differently [G13]  Amounts used  No Limit  Frequency and duration of use  Covers daily exposures up to 8 hours (unless stated) [G2]  Other Operational Conditions affecting worker exposure  Assumes a good basic standard of occupational hygiene has been implemented  [G1]  Contributing Scenarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36]  No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1]  [A]  [B]  [B]  [B]  [B]  [Contribution of Utonnage used locally [A3]  [C]  [C]  [C]  [C]  [C]  [C]  [C]  [	Section 1 Exposure Scenario					
Use Descriptor  Sector(s) of Use  Process Categories  In 0, 15  Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories  Environmental Release Category  Not Applicable  Processes, tasks, activities covered  Use of the substance within laboratory settings, including material transfers and equipment cleaning  Assessment Method  See Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure  Product characteristics  Physical form of product  Concentration of substance in Covers percentage substance in the product up to 100% (unless stated differently [G13])  Amounts used  No Limit  Frequency and duration of use  Assumes use at not > 20cC above ambient [G15]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Secnarios  G13  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [C386]  PROC15  Cleaning [C547] PROC10  No specific measures identified [E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendics 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Frequency and duration of use  Continuous relations (kg/day) [A4]  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Freation of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of EU tonnage used locally [A3]  Annual site tonnage (kg/day) [A4]  Proquency and duration of use  Continuous relates [FD2]  Emission days (days/year) [FD4]  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1]  Local marine water dilution factor [EF2]  Other given operational conditions affecting environmental exposure	•	THE				
Use Descriptor  Sector(s) of Use 3 Process Categories   10, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories   2, 4  Specific Environmental Release Category   Not Applicable   Not Applicable   Not Applicable   Processes, tasks, activities covered   Use of the substance within laboratory settings, including material transfers and equipment cleaning.  Assessment Method   See Section 3 [AM1].  See Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure   Product characteristics   Physical form of product   Concentration of substance in product   Concentration of substance in   Contributing Seenarios   Covers gaily exposures up to 8 hours (unless stated) [G2]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Seenarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [C336]   No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendics 1 to 3  Specific Risk management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [C336]   No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendics 1 to 3  Specific Risk management   Description of Regional tonnage used locally [A3]   Description of Regional tonnage (kg/day) [A4]   Descripti		1 GES17.1				
Sector(s) of Use   3 Process Categories   10, 15 Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.  Environmental Release Categories   2, 4 Specific Environmental Release Category   Not Applicable   Processes, tasks, activities covered   Use of the substance within laboratory settings, including material transfers and equipment cleaning.  Assessment Method   See Section 3 [AM1] Section 2 Operational conditions and risk management measures   Section 3 [Am1] Section 3 Operational conditions and risk management measures   Section 3 [Am1] Section 5 Operational conditions and risk management measures   Section 2.1 Control of worker exposure   Product characteristics   Physical form of product   Concentration of substance in product   Govers percentage substance in the product up to 100% (unless stated differently [G13]   Amounts used   No Limit   Frequency and duration of use   Covers daily exposures up to 8 hours (unless stated) [G2]   Other Operational Conditions   Assumes a good basic standard of occupational hygiene has been implemented [G1]   Contributing Seenarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [C336]   No specific measures identified[E118]   Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3 Section 2.2 Control of environmental exposure   Product characteristics   Substance is complex UVCB [PC3]. Predominantly hydrophobic [PrC4a].  Amounts used   Section 2.1 Control of environmental exposure   Section 3 [Am1]   Section of Regional tonnage used locally [A3]   Section of Regional tonnage (tonres/year) [A5]   Section of Regional tonnage (tonres/year) [A5]   Section of Regional tonnage used locally [A4]   S						
Process Categories		3				
Further information on the mapping and allocation of PROC codes is contained in Appendix 1.a.	· /		15			
Environmental Release Categories   2, 4   Specific Environmental Release Category   Not Applicable   Processes, tasks, activities covered   Use of the substance within laboratory settings, including material transfers and equipment cleaning.  Assessment Method   See Section 3 [AMI].   Section 2 Operational conditions and risk management measures   See Section 3 [AMI].   Section 2 Operational conditions and risk management measures   Section 2.1 Control of worker exposure   Product characteristics   Physical form of product   Concentration of substance in   Covers percentage substance in the product up to 100% (unless stated differently [Gil3]   Amounts used   No Limit   Frequency and duration of use   Other Operational Conditions   Assumes a good basic standard of occupational hygiene has been implemented [Gil]   Contributing Secnarios   Assumes a good basic standard of occupational hygiene has been implemented [Gil]   Contributing Secnarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36]   No specific measures identified[EI18]   Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3   Section 2.2 Control of environmental exposure   Product characteristics   Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].   Amounts used   Fraction of EU tonnage used in region [A1]   0.1   Regional use tonnage (tonnes/year) [A2]   5   Fraction of EU tonnage used in region [A1]   0.1   Regional use tonnage (tonnes/year) [A2]   5   Traction of EU tonnage used in region [A1]   0.1   Regional use tonnage (tonnes/year) [A2]   5   Traction of EU tonnage used locally [A3]   0.4   Annual site tonnage (tonnes/year) [A5]   100   Trequency and duration of use   Continuous release [FD2].   20   Environmental factors not influenced by risk management   Local freshwater dilution factor [EF2]   100   Other given operational conditions affecting environmental exp		Fur	ther information on the	11 0		
Specific Environmental Release Category   Not Applicable	Environmental Dalaga Catago			in Appendix 1.a.		
Processes, tasks, activities covered						
Use of the substance within laboratory settings, including material transfers and equipment cleaning.  Assessment Method  See Section 3 [AM1].  Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure  Product characteristics  Physical form of product Concentration of substance in product Concentration of substance in product In product Amounts used No Limit Assumes a good basic standard of occupational hygiene has been implemented [G1]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Scenarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36] PROC15  Cleaning [CS47] PROC10  No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of Regional tonnage used locally [A3]  Annual site tonnage (tonnes/year) [A5]  Maximum daily site tonnage (kg/day) [A4]  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4]  Local freshwater dilution factor [EF2]  Other given operational conditions affecting environmental exposure	_		Пррисцоге			
Assessment Method See Section 3 [AMI]. Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure Product characteristics Physical form of product Concentration of substance in product India, vapour pressure > 10 kPa at STP [OC5] Concentration of substance in product India, vapour pressure > 10 kPa at STP [OC5] Concentration of substance in product in the product up to 100% (unless stated differently [G13] Amounts used No Limit Frequency and duration of use Covers daily exposures up to 8 hours (unless stated) [G2] Other Operational Conditions affecting worker exposure Assumes a good basic standard of occupational hygiene has been implemented [G1] Contributing Scenarios Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  No specific measures identified[E118] Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3 Section 2.2 Control of environmental exposure  Product characteristics Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used Fraction of EU tonnage used in region [A1] Regional use tonnage (tonnes/year) [A2] Fraction of Regional tonnage used locally [A3] Annual site tonnage (tonnes/year) [A5] Maximum daily site tonnage (kg/day) [A4] Frequency and duration of use Continuous release [FD2]. Emission days (days/year) [FD4] Emission days (days/year) [FD4] Environmental factors not influenced by risk management Local freshwater dilution factor [EF2] Other given operational conditions affecting environmental exposure			material transfers and	equipment cleaning.		
Section 2 Operational conditions and risk management measures  Section 2.1 Control of worker exposure Product characteristics Physical form of product Concentration of substance in product Covers percentage substance in the product up to 100% (unless stated differently [G13] Covers daily exposures up to 8 hours (unless stated) [G2] Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene has been implemented [G1] Contributing Scenarios Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36] PROC15 Cleaning [CS47] PROC10 No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3 Section 2.2 Control of environmental exposure  Product characteristics Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used Fraction of EU tonnage used in region [A1] Regional use tonnage (tonnes/year) [A2] Fraction of Regional tonnage used locally [A3] Annual site tonnage (tonnes/year) [A5] Maximum daily site tonnage (kg/day) [A4] Frequency and duration of use Continuous release [FD2]. Emission days (days/year) [FD4] Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] Local marine water dilution factor [EF2] Other given operational conditions affecting environmental exposure			5			
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product [G13] Amounts used   Covers daily exposures up to 8 hours (unless stated) [G2] Other Operational Conditions affecting worker exposure   Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene has been implemented [G1] Contributing Scenarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed) Laboratory activities [CS36]   No specific measures identified[E118] PROC15   No specific measures identified[E118] Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3 Section 2.2 Control of environmental exposure Product characteristics Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a]. Amounts used Fraction of EU tonnage used in region [A1]   0.1 Regional use tonnage (tonnes/year) [A2]   5 Fraction of Regional tonnage used locally [A3]   0.4 Annual site tonnage (tonnes/year) [A5]   2 Maximum daily site tonnage (kg/day) [A4]   100 Frequency and duration of use Continuous release [FD2]. Emission days (days/year) [FD4]   20 Environmental factors not influenced by risk management Local freshwater dilution factor [EF1]   10 Cother given operational conditions affecting environmental exposure						
Amounts used Frequency and duration of use Other Operational Conditions affecting worker exposure  Assumes use at not > 200C above ambient [G15]  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Scenarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36] PROC15  Cleaning [CS47] PROC10  No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of Regional tonnage used locally [A3]  Annual site tonnage (tonnes/year) [A5]  Maximum daily site tonnage (kg/day) [A4]  Frequency and duration of use Continuous release [FD2].  Emission days (days/year) [FD4]  Emission days (days/year) [FD4]  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1]  Other given operational conditions affecting environmental exposure			ance in the product up t	to 100% (unless stated differently)		
Covers daily exposures up to 8 hours (unless stated) [G2]     Other Operational Conditions affecting worker exposure   Assumes use at not > 20oC above ambient [G15]     Assumes a good basic standard of occupational hygiene has been implemented [G1]     Contributing Scenarios   Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)     Laboratory activities [CS36]   PROC15   No specific measures identified[E118]     Cleaning [CS47] PROC10   No specific measures identified[E118]     Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3     Section 2.2 Control of environmental exposure     Product characteristics     Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].     Amounts used     Fraction of EU tonnage used in region [A1]   0.1     Regional use tonnage (tonnes/year) [A2]   5     Fraction of Regional tonnage used locally [A3]   0.4     Annual site tonnage (tonnes/year) [A5]   2     Maximum daily site tonnage (kg/day) [A4]   100     Frequency and duration of use     Continuous release [FD2].     Emission days (days/year) [FD4]   20     Environmental factors not influenced by risk management     Local freshwater dilution factor [EF1]   10     Local marine water dilution factor [EF2]   100     Other given operational conditions affecting environmental exposure	<b>1</b>					
Other Operational Conditions affecting worker exposure  Assumes a good basic standard of occupational hygiene has been implemented [G1]  Contributing Scenarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36]  PROC15  Cleaning [CS47] PROC10  No specific measures identified[E118]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of Regional tonnage used locally [A3]  Annual site tonnage (tonnes/year) [A5]  Maximum daily site tonnage (kg/day) [A4]  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4]  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1]  Other given operational conditions affecting environmental exposure			un to 8 hours (unless ste	oted) [G2]		
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Contributing Scenarios  Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)  Laboratory activities [CS36] PROC15  Cleaning [CS47] PROC10  No specific measures identified[EI18]  Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices I to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of Regional tonnage used locally [A3]  Annual site tonnage (tonnes/year) [A5]  Maximum daily site tonnage (kg/day) [A4]  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4]  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1]  Local marine water dilution factor [EF2]  Other given operational conditions affecting environmental exposure						
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Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3  Section 2.2 Control of environmental exposure  Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1] 0.1  Regional use tonnage (tonnes/year) [A2] 5  Fraction of Regional tonnage used locally [A3] 0.4  Annual site tonnage (tonnes/year) [A5] 2  Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure		No specific measures ide	entified[EI18]			
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Product characteristics  Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1] 0.1  Regional use tonnage (tonnes/year) [A2] 5  Fraction of Regional tonnage used locally [A3] 0.4  Annual site tonnage (tonnes/year) [A5] 2  Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure		basis for the allocation o	f the identified OCs ar	nd RMMs is contained in		
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].  Amounts used  Fraction of EU tonnage used in region [A1] 0.1  Regional use tonnage (tonnes/year) [A2] 5  Fraction of Regional tonnage used locally [A3] 0.4  Annual site tonnage (tonnes/year) [A5] 2  Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	Section 2.2 Control of enviro	nmental exposure				
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Fraction of EU tonnage used in region [A1]  Regional use tonnage (tonnes/year) [A2]  Fraction of Regional tonnage used locally [A3]  Annual site tonnage (tonnes/year) [A5]  Maximum daily site tonnage (kg/day) [A4]  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4]  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1]  Local marine water dilution factor [EF2]  Other given operational conditions affecting environmental exposure	Substance is complex UVCB [1	PrC3]. Predominantly hyd	drophobic [PrC4a].			
Regional use tonnage (tonnes/year) [A2] 5 Fraction of Regional tonnage used locally [A3] 0.4 Annual site tonnage (tonnes/year) [A5] 2 Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use Continuous release [FD2]. Emission days (days/year) [FD4] 20 Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10 Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	Amounts used					
Regional use tonnage (tonnes/year) [A2] 5 Fraction of Regional tonnage used locally [A3] 0.4 Annual site tonnage (tonnes/year) [A5] 2 Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use Continuous release [FD2]. Emission days (days/year) [FD4] 20 Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10 Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	Fraction of EU tonnage used in	region [A1]		0.1		
Annual site tonnage (tonnes/year) [A5] 2  Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure				5		
Annual site tonnage (tonnes/year) [A5] 2  Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	Fraction of Regional tonnage u	sed locally [A3]		0.4		
Maximum daily site tonnage (kg/day) [A4] 100  Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure				2		
Frequency and duration of use  Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	• • • • • • • • • • • • • • • • • • • •	,		100		
Continuous release [FD2].  Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure						
Emission days (days/year) [FD4] 20  Environmental factors not influenced by risk management  Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure						
Local freshwater dilution factor [EF1] 10  Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure		4]		20		
Local marine water dilution factor [EF2] 100  Other given operational conditions affecting environmental exposure	Environmental factors not in	fluenced by risk manage	ement			
Other given operational conditions affecting environmental exposure	Local freshwater dilution factor	r [EF1]		10		
				100		
Release fraction to air from process (initial release prior to RMM) [OOC4] 0.025	Other given operational cond	litions affecting environr	nental exposure			
include fraction to all from process (initial release prior to Rivily) [OOC4]	Release fraction to air from pro	ncess (initial release prior	to RMM) [OOC4]	0.025		
	recieuse fraction to an from pre	(initial release prior	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.025		

Release fraction to wastewater from process (initial release prior to RMM)	0.02
[OOC5]	
Release fraction to soil from process (initial release prior to RMM) [OOC6]	0.0001
Technical conditions and measures at process level (source) to prevent release	ase
Common practices vary across sites thus conservative process release estimates	used [TCS1].
Technical onsite conditions and measures to reduce or limit discharges, air	emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b].	
No wastewater treatment required [TCR6].	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	0
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of ≥ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine	rated, contained or reclaimed
[OMS3].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment	96.9
(%) [STP3]	
Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	

# Conditions and measures related to external treatment of waste for disposal

Maximum allowable site tonnage (M<sub>Safe</sub>) based on release following total

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

6500

2000

# Conditions and measures related to external recovery of waste

Assumed domestic sewage treatment plant flow (m<sup>3</sup>/d) [STP5]

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

# **Section 3 Exposure Estimation**

wastewater treatment removal (kg/d) [STP6]

#### 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

#### **Exposure Estimation:**

# Human Health

See Appendix 2.a.

### **Environment**

See PETRORISK file (Annex III)..

# 1.18 Use in Laboratories – Professional

1.18.1 Exposure Scenario

Section 1 Exposure Scenario					
Title	THE				
Use in Laboratories – Profession	onal GES17.2				
Use Descriptor					
Sector(s) of Use	22				
Process Categories		, 15			
		•	mapping and allocation of		
	PR	OC codes is contained in	n Appendix 1.a.		
Environmental Release Catego					
Specific Environmental Releas	<b>U</b> 3	VOC 8.17.v1			
Processes, tasks, activities cov					
Use of small quantities within l	laboratory settings, inclu	ding material transfers ar	nd equipment cleaning.		
Assessment Method					
See Section 3 [AM1].					
Section 2 Operational condit	ions and risk managem	ent measures			
Section 2.1 Control of worke	r exposure				
Product characteristics  Dhysical form of product	Liquid vanour programs	> 10 l-Do at CTD [OC5]			
Physical form of product Concentration of substance in	Liquid, vapour pressure		o 100% (unless stated differently)		
product	[G13]	tance in the product up to	5 100% (unless stated differentry)		
Amounts used	No Limit				
Frequency and duration of use		up to 8 hours (unless sta	ted) [G2]		
Other Operational Conditions		OoC above ambient [G15			
affecting worker exposure		_			
	Assumes a good basic s	tandard of occupational	hygiene has been implemented		
Contributing Scenarios	L 3	nent Measures and Ope	erating Conditions (only		
**************************************		nonstrate safe use listed			
Laboratory activities [CS36] PROC15	No specific measures id	entified[EI18]			
Cleaning [CS47] PROC10	No specific measures id				
Additional information on the Appendices 1 to 3	basis for the allocation	of the identified OCs an	d RMMs is contained in		
Section 2.2 Control of enviro	nmental exposure				
Product characteristics	-				
Substance is complex UVCB []	PrC3]. Predominantly hy	vdrophobic [PrC4a].			
Amounts used					
Fraction of EU tonnage used in	region [A1]		0.1		
Regional use tonnage (tonnes/y			5		
Fraction of Regional tonnage u	,		0.0005		
Annual site tonnage (tonnes/ye			0.0025		
Maximum daily site tonnage (k	,		0.0069		
Frequency and duration of us			0.0007		
Continuous release [FD2].	SC				
Emission days (days/year) [FD4] 365					
Environmental factors not in		ement			
Local freshwater dilution factor			10		
Local marine water dilution factor [EF2] 100					
Other given operational cond		mental exposure	1 - '		
		•			
Release fraction to air from wie	de dispersive use (region	al only) [OOC7]	0.5		

Release fraction to wastewater from wide dispersive use [OOC8]	0.5
Release fraction to soil from wide dispersive use (regional only) [OOC9]	0
Technical conditions and measures at process level (source) to prevent rele	ase
Common practices vary across sites thus conservative process release estimates	used [TCS1].
Technical onsite conditions and measures to reduce or limit discharges, air	emissions and releases to soil
Risk from environmental exposure is driven by frehwater sediment [TCR1b]. No wastewater treatment required [TCR6].	
Treat air emission to provide a typical removal efficiency of (%) [TCR7]	0
Treat onsite wastewater (prior to receiving water discharge) to provide the	0
required removal efficiency ≥ (%) [TCR8]	
If discharging to domestic sewage treatment plant, provide the required onsite	0
wastewater removal efficiency of $\geq$ (%) [TCR10]	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incine [OMS3].	erated, contained or reclaimed
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%) [STP3]	96.9
Total efficiency of removal from wastewater after onsite and offsite (domestic	96.9
treatment plant) RMMs (%) [STP4]	96.9
Maximum allowable site tonnage (M <sub>Safe</sub> ) based on release following total	260
wastewater treatment removal (kg/d) [STP6]	
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d) [STP5]	2000

# Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].

#### Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in Petrorisk file in IUCLID Section 13 - "LocalCSR" worksheet

# **Section 3 Exposure Estimation**

# 3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

# 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

# Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

Where other Risk management Measures/Operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]

# 4.2. Environment

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 [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

#### **Exposure Estimation:**

**Human Health** 

See Appendix 2.a.

**Environment** 

See PETRORISK file (Annex III).

# 1.19 Regional Environment Exposure Estimation

See PETRORISK file – "RegionalCSR" worksheet

#### 1.20 ASPIRATION HAZARD (R65) OUALITATIVE CSA

The purpose of the qualitative risk characterisation is to assess:

".the likelihood that effects are avoided when implementing the exposure scenario..." (REACH Annex 1, Section 6.5).

This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. The endpoints for which the available data may trigger a qualitative risk characterisation includes aspiration hazard (R65).

'Aspiration' means the entry of a liquid substance directly into the trachea and lower respiratory tract. Aspiration of hydrocarbon substances can result in severe acute effects such as chemical pneumonitis, varying degrees of pulmonary injury or death. This property relates to the potential for low viscosity material to spread quickly into the deep lung and cause severe pulmonary tissue damage. Classification of a hydrocarbon substance for aspiration hazard is made on the basis of reliable human evidence or on the basis of physical properties.

The R65 risk phrase (Harmful: may cause lung damage if swallowed) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived.

This general qualitative CSA approach aims to reduce/avoid contact or incidents with the substance. However, implementation of risk management measures (RMMs) and operational conditions (OCs) need to be proportional to the degree of concern for the health hazard presented by the substance. Exposures should be controlled to at least the levels that represent an acceptable level of risk such that the implementation of the chosen RMMs will ensure that the likelihood of an event occurring due to the substance hazard is negligible, and the risk is considered to be controlled to a level of no concern.

There are no routine anticipated exposures by ingestion related to any supported uses of the substance. The risk arising from aspiration hazard is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific risk. For any substance, classified as R65, these measures should be communicated via the safety data sheet by use of the following phrase:

• Do not ingest. If swallowed then seek immediate medical assistance.

Furthermore it should be noted that where the substance is sold for use in lamp oils and grill lighters by the general public (Consumers), then these must be visibly, legibly and indelibly marked as follows, in accordance with REACH Annex XVII update of 1.4.2010:

- Keep lamps filled with this liquid out of the reach of children.
- Just a sip of lamp oil or even sucking the wick of lamps may lead to life threatening lung damage.

# 1.21 SKIN DEFATTING HAZARD (R66) QUALITATIVE CSA

The purpose of the qualitative risk characterisation is to assess:

".the likelihood that effects are avoided when implementing the exposure scenario..." (REACH Annex 1, Section 6.5).

This qualitative Chemical Safety Assessment (CSA) approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health adverse effect, i.e. when the available data for this adverse effect do not provide quantitative dose-response information, but there exist toxicity data appropriate to allow a qualitative risk characterisation. The end points for which the available data may trigger a qualitative risk characterisation includes defatting of the skin (R66). This hazard is considered to be very low hazard.

For substances and preparations that do not meet the criteria for R38 but which may cause concern as a result of skin dryness, flaking or cracking, the risk phrase R66 (Repeated exposure may cause skin dryness or cracking)

shall be used. Decisions for applying this phrase are derived either from practical observation after normal handling and use or from other relevant information used to predict effects on the skin.

The R66 risk phrase is generally applied to petroleum substances and solvents that have the capacity to extract lipids from the skin and that are not classified as skin irritant. R66 does not relate to a classifiable endpoint, and there is no standardized test method to quantify the effect. Thus, a DNEL cannot be derived.

Note that R66 is an "additional" risk phrase which means that it shall be applied only to substances or preparations that are already classified whilst assignment of the risk phrase R66 does not, in itself, have any impact on the formal classification of the substance.

This general qualitative CSA approach aims to reduce/avoid contact or incidents with the substance. However, implementation of risk management measures (RMMs) and operational conditions (OCs) need to be proportional to the degree of concern for the health hazard presented by the substance. Exposures should be controlled to at least the levels that represent an acceptable level of risk such that the implementation of the chosen RMMs will ensure that the likelihood of an event occurring due to the substance hazard is negligible, and the risk is considered to be controlled to a level of no concern.

For skin defatting a qualitative risk characterisation has been conducted. Handling and storage risk management measures that are generally identified for skin defatting risks are outlined in Appendix 3.b. A review of these RMMs indicates that if the user complies with the following generic statement, risks due to skin defatting are considered to be controlled. For any substance, classified as R66, these measures should be communicated via the safety data sheet by use of the following phrase:

• PPE20: If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes

# 2 RISK CHARACTERISATION

# 2.1 Manufacture of Substance – Industrial

# 2.1.1 Human Health

See Appendix A.

# 2.1.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.2 Distribution of Substance – Industrial

# 2.2.1 Human Health

See Appendix A.

# 2.2.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.3 Formulation & (Re)packing of Substances and Mixtures – Industrial

# 2.3.1 Human Health

See Appendix A.

#### 2.3.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.4 Uses in Coatings - Industrial

# 2.4.1 Human Health

See Appendix A.

# 2.4.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.5 Uses in Coatings – Consumer

# 2.5.1 Human Health

See Appendix A.

# 2.5.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.6 Use in Cleaning Agents – Industrial

# 2.6.1 Human Health

See Appendix A.

# 2.6.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.7 Use in Cleaning Agents – Professional

# 2.7.1 Human Health

See Appendix A.

#### 2.7.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.8 Use in Cleaning Agents – Consumer

# 2.8.1 Human Health

See Appendix A.

# 2.8.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.9 Use as Blowing Agents – Industrial

# 2.9.1 Human Health

See Appendix A.

# 2.9.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.10 Use in Agrochemicals – Professional

# 2.10.1 Human Health

See Appendix A.

# 2.10.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.11 Use as a Fuel – Industrial

# 2.11.1 Human Health

See Appendix A.

#### 2.11.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.12 Use as a Fuel – Professional

# 2.12.1 Human Health

See Appendix A.

# 2.12.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.13 Use as a Fuel - Consumer

# 2.13.1 Human Health

See Appendix A.

#### 2.13.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.14 Use as Functional Fluids – Industrial

#### 2.14.1 Human Health

See Appendix A.

#### 2.14.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.15 Use as Functional Fluids – Professional

# 2.15.1 Human Health

See Appendix A.

# 2.15.2 Environment

See PETRORISK file - "LocalCSR" worksheet

### 2.16 Other Consumer Uses – Consumer

#### 2.16.1 Human Health

See Appendix A.

#### 2.16.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.17 Use in Laboratories – Industrial

# 2.17.1 Human Health

See Appendix A.

#### 2.17.2 Environment

See PETRORISK file - "LocalCSR" worksheet

#### 2.18 Use in Laboratories – Professional

# 2.18.1 Human Health

See Appendix A.

#### 2.18.2 Environment

See PETRORISK file - "LocalCSR" worksheet

# 2.19 Overall exposure (combined for all relevant emission/release sources)

# 2.19.1 Human health (combined for all exposure routes)

Combined exposures can be calculated with information provided on the individual exposure scenarios presented in section 9. However, it is unclear how to define risk management measures resulting from this analysis.

# 2.19.2 Environment (combined for all exposure routes)

Combined exposures can be calculated with information provided on the individual exposure scenarios presented in section 9. However, it is unclear how to define risk management measures resulting from this analysis.

# 2.20 Regional Environment

See PETRORISK file – "RegionalCSR" worksheet

# 2.21 ASPIRATION HAZARD (R65) QUALITATIVE CSA

The implementation of relevant RMMs will ensure that the likelihood of an event occurring due to the aspiration hazard of the substance is negligible and the risk is considered to be controlled to a level of no concern. For aspiration hazard a qualitative risk characterisation has been conducted consistent with the considerations

and risk management measures identified in the Table below.

Hazard	Material	Risk / Hazard	Examples of Relevant S Phrases and P	Components of the Qualitative Risk Assessment
Aspiration Toxicity (R65)	• Liquid	R65 / H304	Response:  (S2): Keep out of the reach of children (for dangerous products sold to the general public must include this safety phrase)  S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label  P102: Keep out of reach of children.  P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  P331: Do NOT induce vomiting.  Storage:  P405: Store locked up.  Disposal:  P501: Dispose of contents/container to in accordance with local/regional/ national/international regulations (to be specified)	<ul> <li>Worker</li> <li>Do not ingest</li> <li>Implementation of basic standards of occupational hygiene</li> <li>Avoid splashes and spills</li> <li>Avoidance of contact with contaminated tools and objects</li> <li>Management/supervision to check that the RMMs in place are being used correctly and OCs followed</li> <li>Training for staff on good practice</li> <li>Good standard of personal hygiene</li> <li>Consumer</li> <li>Do not ingest</li> <li>For lamp oils and grill lighters, follow the provisions of REACH – Annex XVII, including:</li> <li>Marketing in black opaque containers not exceeding 1 litre</li> <li>Labelling with specific safe use instruction</li> </ul>

For any substance, classified as R65, these risk management measures should be communicated via the safety data sheet by use of the following phrase:

• Do not ingest. If swallowed then seek immediate medical assistance.

# 2.22 SKIN DEFATTING HAZARD (R66) QUALITATIVE CSA

The implementation of relevant RMMs will ensure that the likelihood of an event occurring due to the substance hazard of skin defatting is negligible and the risk is considered to be controlled to a level of no concern. For skin defatting a qualitative risk characterisation has been conducted consistent with the considerations and risk management measures identified in the Table below.

Hazard	Material	Risk / Hazard Phrase	Examples of Relevant S Phrases and P Statements	Components of the Qualitative Risk Assessment
Skin defatting (R66)	• Liquid	R66 / EUH066 Repeated exposure may cause skin dryness or cracking	No designated S and P phrases are assigned, though the following phrase may be appropriate: S24 Avoid contact with skin  Response:  P280: Wear protective gloves/protective clothing/eye protection/face protection.  P281: Use personal protective equipment as required.	<ul> <li>Implementation of basic standards of occupational hygiene;</li> <li>Avoid repeated and/or prolonged skin contact with product;</li> <li>Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination promptly;</li> <li>Avoid splashes and spills;</li> <li>Avoidance of contact with contaminated tools and objects;</li> <li>Clean up contamination/spills;</li> <li>Regular cleaning of equipment and work area;</li> <li>Management/supervision to check that the RMMs in place are being used correctly and OCs followed;</li> <li>Training for staff on good practice to prevent / minimise exposures and to report any skin effects that may develop;</li> <li>Good standard of personal hygiene.</li> </ul>

For any substance, classified as R66, these measures should be communicated via the safety data sheet by use of the following phrase:

• PPE20: If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes

# Appendix 1a Use Mapping/Operational Conditions – worker

# 1.1 Manufacture of Substance – Industrial

	Table 1: Mapping Uses in the Supply Chain							
			Typical Mapped Typical Operating	Typical Ma	pped RMMs	Use Descriptor		
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Categor equivalent	
Manufacture of substance	Industrial - SU8/9/3	General process exposures (no sampling)	CS15	Continuous; daily; 15 - 1 hour; product temp. Outdoor	Closed processes	Closed process. No exposure.	PROC1 Closed process (no sampling)	
	Industrial - SU8/9/3	General process exposures and sample collection	CS15	Continuous; daily; 15 mins - 1 hour; product temp. Outdoor	Enclosed process; Outdoor location; closed/semi- closed sampling point	With LEV	PROC2 Closed continuous process (with sampling)	
	Industrial - SU8/9/3	General process exposures	CS15	Batch process; daily; 15 - 1 hour; product temp.; Indoor/Outdoor	Closed equipment, enclosed or vented sampling points	With LEV	PROC3 Closed batch process (with sampling)	
	Industrial - SU8/9/3	General exposures open batch process	CS16	Daily; 15 - 1 hour; product temp.; Indoor/Outdoor	Enclosed transfers, clear lines prior to decoupling	With LEV	PROC4 batch process with exposure	
	Industrial - SU8/9/3	Sample collection	CS2	Daily; <15 mins; product temp.; Indoor/Outdoor	Closed or ventilated sampling points	With LEV	PROC8b Dedicated discharging to/from vessels	
	Industrial - SU8/9/3	Laboratory activities	CS36	Daily; 15 mins - 1 hour; product temp.; Indoor	Fume cupboard. PPE.	With LEV	PROC15 Use in laboratory	
	Industrial - SU8/9/3	Bulk transfers (no lev)	CS14, CS108	Daily; 15 - 1 hour; product temp.; Indoor/Outdoor	Enclosed transfers, clear lines prior to decoupling	With LEV	PROC8b Dedicated discharging to/from vessels	
	industrial - \$U8/9/3	Bulk transfers (with lev)	CS14, CS107	Daily; 15 - 1 hour; product temp.; Indoor/Outdoor	Enclosed transfers, vented transfer points; clear lines prior to decoupling	With LEV	PROC8b Dedicated discharging to/from vessels	
	Industrial - SU8/9/3	Clean down and Maintenance	CS39	Daily; 15 mins -1 hour; product temp; collection of line waste in container; Indoor/Outdoor	Enclosed lines; retain wash down in sealed storage pending disposal or use as recycled material for subsequent formulation. PPE.	No LEV	PROC8a Non- dedicated discharging to/from vessels	
	Industrial - SU3 / SU10	Storage	CS67	Daily; 8 hrs; product temp;	samples collected at dedicated sample point	outdoor activity	PROC1 Closed process (no sampling)	
	Industrial - SU3 / SU10	Storage	CS67	Daily; 8 hrs; product temp;	samples collected at dedicated sample point	outdoor activity	PROC2 Closed continuous process (with sampling)	

# 1.2 Distribution of Substance – Industrial

	Table 1: Mapping Uses in the Supply Chain								
			Typical Mapped Operating	Typical Ma	pped RMMs	Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent		
Distribution of substance	Industrial - SU3	General process exposures - closed process (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	Continuous; Outdoor; daily; 15 - 1 hour; product temp.	Closed process. No exposure.	Closed process. No exposure.	PROC1 Closed process (no sampling)		
	Industrial - SU3	General process exposures (occasional controlled exposure)	CS15	Continuous; Outdoor; daily; 15 mins - 1 hour; product temp.	Enclosed process; closed/semi- closed sampling point	No LEV	PROC2 Closed continuous process (with sampling)		
	Industrial - SU3	General process exposures - closed batch process	CS15	Batch process; Outdoor; daily; 15 - 1 hour; product temp.	Closed equipment, enclosed or vented sampling points	No LEV	PROC3 Closed batch process (with sampling)		
	Industrial -SU3	General exposures open batch process	CS16	Daily; Indoor/Outdoor; 15 - 1 hour; product temp.	Enclosed transfers, clear lines prior to decoupling	With LEV	PROC4 batch process with exposure		
	Industrial - SU3	Sample collection	CS2	Daily; <15 mins; product temp.; Outdoor;	Closed or ventilated sampling points	No LEV	PROC3 Closed batch process (with sampling)		
	Industrial - SU3	Laboratory activities	CS36	Daily; 15 mins - 1 hour; product temp.; Indoor	Fume cupboard. PPE.	With LEV	PROC15 Use in laboratory		
Combine in narrative as Bulk Transfer CS14 unless differentiation required in practice	Industrial - SU3	Bulk closed loading and unloading NEW CS (e.g. road/rail car bottom loading/unloading; marine vessel/barge loading/unloading;)	CS14, CS107 Bulk transfers (closed systems)	Outdoor; Daily; 15.  1 hour; product temp.; exposure potential during breaking of hose connection	Enclosed transfers, clear lines prior to decoupling	No LEV	PROC8b Dedicated Discharging to/from vessels		
LEV option	Industrial - SU3	Bulk open loading NEW CS (e.g. road/rail car top loading, may involve LEV)	CS14, CS108 Bulk transfers (open systems)	Outdoor; Daily; 1 - 4 hours; product temp ambient; exposure potential from vapour emissions from tank opening	Enclosed transfers, submerged loading via tank opening, collection of drips from loading arm. May involve LEV.	With LEV	PROC8b Dedicated discharging to/from vessels		
	Industrial - SU3	Drum and small package filling	CS6	Indoor; Continuous; daily; 8 hour; product temp.	Enclosed transfers, vented transfer points, dedicated filling line	With LEV	PROC9 Transfer of substance/mixture into small containers		
	Industrial - SU3	Clean down and Maintenance	CS39	Daily; 15 min - 1 hour; product temp; collection of line waste in container	Enclosed lines; retain wash down in sealed storage pending disposal or use as recycled material for subsequent formulation. PPE.	No LEV	PROC8a Non- dedicated discharging to/from vessels		
	Industrial - SU3	Storage	CS67	Daily; 8 hrs; product temp; Outdoors	Samples collected at dedicated sample point	-	PROC1 Closed continuous process (sometimes with sampling)		
	Industrial - SU3	Storage	CS67	Daily; 8 hrs; product temp; Outdoors	Samples collected at dedicated sample point	outdoor activity	PROC2 Closed continuous process (sometimes with sampling)		

## 1.3 Formulation & (Re)packing of Substances and Mixtures – Industrial

	Table 1: Mapping Uses in the Supply Chain								
				Typical Mapped Operating	Typical Map	oped RMMs	Use Descriptor		
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent		
Formulation &	Industrial -	General process	CS15	Continuous; daily;	Closed processes	Closed process.	PROC1 Closed		
(re)packing of substances and mixtures	SU3/SU10	exposures (no sampling) (e.g. In- line additive dosing equipment, in-line filter cleaning)		15 - 1 hour; product temp.		No exposure.	process (no sampling)		
	Industrial - SU3/ SU10	General process exposures and sample collection	CS15	Continuous; daily; 15 mins - 1 hour	Enclosed process; closed/semi- closed sampling point	No LEV	PROC2 Closed continuous process (with sampling)		
	industriai: -SU3/ SU10	General process exposures (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	Batch process; daily; 15 - 1 hour; product temp.	Closed equipment, enclosed or vented sampling points	No LEV	PROC3 Closed batch process (with sampling)		
	Industrial: ∠SU3/ SU10	General exposures open batch process	CS16	Daily; Indoor; 15 - 1 hour; product temp.	Enclosed transfers, clear lines prior to decoupling, ventilation at transfer points and mixing vessels	With LEV	PROC4 batch process with exposure		
Elevated temperature therefore applied value for medium volatility	Industrial -SU3/ SU16	Batch processes at elevated temperatures (e.g. solvents resin manufacture, grease manufacture)	CS136	Batch process; daily; 15 - 1 hour; product temp.	Closed equipment, enclosed or vented sampling points, vented mixing/process vessels	With LEV	PROC3 Closed batch process (with sampling)		
	Industrial - SU3/ SU10	Sample collection	CS2	Daily; <15 mins; product temp.	Closed or ventilated sampling points	No LEV	PROC3 Closed batch process (with sampling)		
	lindustrial: -SU3/ SU3	Laboratory activities	CS36	Daily; 15 mins - 1 hour; product temp.; Indoor	Fume cupboard. PPE.	With LEV	PROC15 Use in laboratory		
	Industrial: -:\$U3/ SU10	Bulk transfers	CS14	Daily; 15 min - 1 hour; product temp; collection of line waste in container	Enclosed transfers, vented transfer points; clear lines prior to decoupling	With LEV	PROC8b Dedicated discharging to/from vessels		
	Industrial - SU3/ SU10	Mixing operations (open systems)	CS30	Indoor. Batch process; daily; 8 hours; product temp	LEV, PPE	With LEV	PROC5 Mixing or blending		
	Industrial - SU3/ SU10	Transfer from/pouring from containers , Manual	CS34 + CS22	Indoor; daily; 15 - 1 hour; product temp.	Manual transfers, LEV, PPE, RPE	With LEV	PROC8a Non- dedicated discharging to/from vessels		
	Industrial - SU3/ SU10	Drum/Batch transfers	CS8	Indoor; daily; 15 - 1 hour; product temp.	Drum pump or dedicated drum handling equipment	With LEV	PROC8b Dedicated discharging to/from vessels		
	Industrial - SU3/ SU10	Tabletting, compression, extrusion or pelletisation	CS100	Indoor; daily; 8 hours; product temp.	LEV, PPE	With LEV	PROC14 Production of preparation by tabletting, compression, extrusion, pelletisation		
	Indústrial - SU3/ SU10	Drum and small package filling	CS6	Indoor, Continuous; daily; 8 hour; product temp.	Enclosed transfers, vented transfer points	With LEV	PROC9 Transfer of substance/mixture into small containers		
	Industrial -SU3/ SU10	Clean down and Maintenance	CS39	Indoor, Daily; 1 - 4 hours; product temp; collection of line waste in container	Enclosed lines; retain wash down in sealed storage pending disposal or use as recycled material for subsequent formulation. PPE.	No LEV	PROC8a Non- dedicated discharging to/from vessels		
	Industrial - SU3/ SU10		CS67	Daily; <15 mins (sampling) product temp (ambient);	samples collected at dedicated sample point	outdoor activity	PROC1 Closed process (no sampling)		
	industrial -SU3/ SU10	Storage	CS67	Daily; <15 mins (sampling) product temp (ambient);	samples collected at dedicated sample point	outdoor activity	PROC2 Closed continuous process (with sampling)		

## 1.4 Uses in Coatings – Industrial

	Table 1: Mapping Uses in the Supply Chain								
				Typical Mapped Operating	Typical Map	oped RMMs	Use Descriptor		
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent		
Use in Coatings (Industrial Application)	Industrial -\$U3	General exposures (closed systems) [CS15].	[CS15]	Continuous; daily; 8hour	Enclosed process; closed/semi- closed sampling point	NO LEV	PROC1 - Use in closed process, no likelihood of exposure		
	Industrial -SU3	General exposures (closed systems) [CS15].	[CS15] [CS56] [CS38]	Continuous; daily; 8hour	Enclosed process; closed/semi- closed sampling point	With LEV	PROC2 - Use in closed, continuous process with occasional controlled		
	Industrial - SU3	Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94].	[CS94]	Elevated Temperatures	enclosed in situ in workplace	With LEV	PROC2 - Use in closed, continuous process with occasional controlled exposure		
	Industrial - SU3	Mixing operations (closed systems) [CS29].	[CS29] [CS15]			With LEV	PROC3 - Use in closed batch process (synthesis or formulation)		
	Industrial - SU3.	Film formation - air drying [CS95].	[CS95]	Duration		With LEV	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises		
	Industrial - SU3	Preparation of material for application [CS96].	[CS96] [CS30]	RPE	liquid/ powder products) - batch, indoor/ outdoor.	With LEV	PROC5 -Mixing or blending in batch processes (multistage and/or significant contact)		
	Industrial - SU3	Spraying (automatic/robotic) [CS97].	[CS97]	Daily; >4 hours, ambient	Enclosed. Vented spray booth; specific workforce education, PPE	With LEV	PROC7 -Industrial spraying		
	Industrial - SU3	Manual [CS34].	[CS34] [CS10]		Open , Air supplied masks, respirator.	NO LEV	PROC7 -Industrial spraying		
Duration Option	Industrial SU3	Material transfers [CS3].	[CS3]	Daily; 15 min - 1 hour; ambient temp; collection of line waste in container. outdoor/ indoor.	Enclosed transfers, vented transfer points; clear lines prior to decoupling	With LEV	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities		
	Industrial - \$U3	Material transfers [CS3].	[CS3]	Daily; 15 min - 1 hour; ambient temp; collection of line waste in container. outdoor/ indoor.	Enclosed transfers, vented transfer points; clear lines prior to decoupling	With LEV	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
	industrial - SU3	Roller, spreader, flow application [CS98].	[CS98]	Daily; >4 hours, ambient. Range from 2-3% upto 40- 50%	Local exhaust ventilation at rollers; remove spills as they occur, PPE. Large scale (open equipment)	With LEV	PROC10 - Roller application or brushing		
	Industrial - SU3	Dipping, immersion and pouring [CS4].	[CS4]	Daily; >4 hours, ambient	Local exhaust ventilation at open surface; remove spills as they occur, PPE	With LEV	PROC13 - Treatment of articles by dipping and pouring		
	Industrial - SU3	Laboratory activities [CS36].	[CS36]	small scale activities small amount, daily 15 min		With LEV	PROC15 - Use of laboratory reagents in small scale laboratories		
	Industrial - SU3	Material transfers [CS3].	[CS3] [CS8] [CS22]	Daily; 15 min - 1 hour; ambient temp;	wear goggles and gloves		PROC9 -Transfer of chemicals into small containers (dedicated filling line)		
	Industrial - SU3	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100].	[CS100]	Daily; 15 min - 1 hour; ambient temp;	wear goggles and gloves	With LEV	PROC14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation		

## 1.5 Use in Cleaning Agents – Industrial

	Table 1: Mapping Uses in the Supply Chain									
				Typical Mapped		pped RMMs	Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent			
Uses in Cleaning	Industrial - SU3	Bulk transfers [CS14].	[CS14]	Daily; 15 min - 1 hour; ambient temp; collection of line waste in container	Enclosed transfers, vented transfer points; clear lines prior to decoupling	Yes	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities			
	Industrial - SU3	Automated process with (semi) closed systems. [CS93].	[CS93]	daily; 8hour	Enclosed process; closed/semi- closed	No	PROC2 - Use in closed, continuous process with occasional controlled exposure			
	Industrial - SU3	Automated process with (semi) closed systems. [CS93].	[CS93]	daily; 15min - 1 hour; ambient temp	Enclosed process; closed/semi- closed	No	PROC3 - Use in closed batch process (synthesis or formulation)			
	Industrial - SU3	Application of cleaning products in closed systems [CS101].	[CS101]	daily; 8hour	Enclosed process; closed/semi- closed	No	PROC2 - Use in closed, continuous process with occasional controlled exposure			
	Industrial - SU3	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	daily; 15min - 1 hour; ambient temp	Pumped transfer from drum to equipment	Yes	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities			
	Industrial - SU3	Use in contained batch processes [CS37].	[CS37]	Daily; 1-4 hours, temperature above boiling point	Closed equipment, enclosed or vented transfer points	Yes	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises			
	Industrial - SU3	Degreasing small objects in cleaning station [CS41].	[CS41]	Daily; >4 hours, ambient	Local exhaust ventilation at open surface; remove spills as they occur, PPE	Yes	PROC13 - Treatment of articles by dipping and pouring			
	Industrial - SU3	Cleaning with low- pressure washers [CS42].	[CS42]	Daily; 15min - 1hour; ambient temp	specific workforce education, PPE	No	PROC10 - Roller application or brushing			
	Industrial - SU3	Cleaning with high pressure washers [CS44].	[CS44]	Daily; 15min - 1hour; ambient temp	specific workforce education, PPE	No	PROC7 -Industrial spraying			
	Industrial - SU3	Manual [CS34].	[CS34]	Daily; 15 min - 1 hour; ambient temp;	collection of waste and wipe cloths in container.	No	PROC10 - Roller application or brushing			

## 1.6 Use in Cleaning Agents – Professional

	Table 1: Mapping Uses in the Supply Chain								
			ubio ii map	Typical Mapped		oped RMMs	Use Descriptor		
	User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent		
The professional use as a component of cleaning products.	Professjónál – SÚ2Z	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	daily; 15min - 1 hour; ambient temp (<10%)	Manual transfer from small pack to application equipment.	No	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
	Professjónál: Súl22	Automated process with (semi) closed systems. [CS93].	[CS93]	daily; 8hour	Enclosed process; closed	No	PROC2 - Use in closed, continuous process with occasional controlled exposure		
	Professional SU22	Automated process with (semi) closed systems. [CS93].	[CS93]	daily; 15min - 1 hour	Enclosed process; closed	No	PROC3 - Use in closed batch process (synthesis or formulation)		
	Professional:- sU22	Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	[CS76]	daily; 8hour	Semi enclosed process; closed	No	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises		
	Professional:- SU22	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	daily; 15min - 1 hour; ambient temp Outdoors	Manual transfer from small pack to application equipment.	No	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities.		
	Professional SU22	Manual (CS34).	[CS34]	Daily; >4 hours, ambient	No Local exhaust ventilation at open surface; remove spills as they occur, PPE	No	PROC13 - Treatment of articles by dipping and pouring		
	Professional SU22	Cleaning with low- pressure washers [CS42].	[CS42]	Daily; >4 hours, ambient temp. 5% max	specific workforce education, PPE	No	PROC10 - Roller application or brushing		
	Professional:- SU22	Cleaning with high pressure washers [CS44].	[CS44]	Daily, 8 hours; ambient temp. Indoor. 0.5% max	specific workforce education, PPE	No	PROC11- Non industrial spraying		
	Professjonal; SU2Z	Cleaning with high pressure washers [CS44].	[CS44]	Daily; 8 hours; ambient temp. Outdoor 0.5% max	specific workforce education, PPE	No	PROC11- Non industrial spraying		
	Professjonál:- SU22	Manual [CS34].	[CS34]	Daily; >4 hours; ambient temp. 10% max.	waste is flushed out with waste water, wipe cloths in container.	No	PROC10 - Roller application or brushing		
	Prófessignal SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	Daily; >4 hours; ambient temp. in a workshop"(with LEV). Daily; < 1 hours; ambient temp. occasional use	water, wipe cloths in container.	Yes	PROC10 - Roller application or brushing		
	Professional:- SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	Daily; >4 hours; ambient temp. in a workshop*(with LEV). Daily; <1 hours; ambient temp. occasional use	waste is flushed out with waste water, wipe cloths in container.	No	PROC10 - Roller application or brushing		
	Prófessional SU22 Professional:-	Application of cleaning products in closed systems [CS101].	[CS101]	daily; 8hour	Enclosed process; closed/semi- closed	Yes	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC4 - Use in		
	\$U22	devices [CS74].	, <u></u>	,	closed/semi- closed	-	batch and other process (synthesis) where opportunity for exposure arises		

## 1.7 Use as a Blowing Agent – Industrial

			Table 1: Map	oing Uses in the	Supply Chain		
				Typical Mapped Operating Conditions	Typical Ma	pped RMMs	Use Descriptor
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent
Blowing agents	Industrial - SU 3	Delivery of solvent to plant storage	CS14	Closed system, ambient temp.	Dedicated line couplings.	NO LEV	PROC8b
		to praint storage		Filling point outdoors. Exposure potential limited to coupling/uncouplin g activities (<15 mln/d)	Operator in attendance.		
	tridustrtal - SU 3	Injection and mixing into molten polymer mass in extruder	CS29	Closed system, high temp., high pressure	High integrity packings etc	NO LEV	PROC1
	tridustrial - SU 3.	Foam production through polymer extrusion	CS122	Indoor, ambient temp.	Extrusion area under LEV (slot design)	With LEV	PROC12
	Industrial - SU 3	Foam panel finishing (shaving/cutting)	CS134	Enclosed area (no operator) under LEV	Enclosure area under LEV	With LEV	PROC12
	triquistrijai - SU 3	Foam panel shavings recycling	CS123	Indoor, ambient temp.	Enclosure area under LEV	With LEV	PROC12
	triquistrial - SU 3.	Foam panel packing	CS124	Indoor, ambient temp.	General ventilation	NO LEV	PROC12
	Industrial - SU 3	Foam panel curing	CS67	Indoor, ambient temp. Warehouse operations with forklift truck. No direct contact with product	General ventilation	NO LEV	PROC12
	industrial - SU 3.	Mixing with polystyrene beads in reactor	CS29	Closed system, Operating Temp. 120-130 dC (elevated temperature); 4.5% agent in mix	Closed system; remotely controlled / automatic operation; forced area ventilation; air monitoring to detect leakages	With LEV	PROC3
	(nqustrijai - SU 3	Transfer to and holding in waiting tank	CS66	Closed system, elevated temperature; 4.5% agent in mix	Closed system; remotely controlled / automatic operation; forced area ventilation; air monitoring to detect leakages	NO LEV	PROC3
	Industriat - SU 3	Centrifuging of slurry of beads and process water	CS127	Closed system, elevated temperature; 4.5% agent in mix	Closed system; remotely controlled / automatic operation; forced area ventilation; air monitoring to detect leakages	NO LEV	PROC3
	industria) - SU 3:	Drying of polystyrene powder/granules	CS12	Indoor, ambient temp. Dedicated equipment.	Vented silo	NO LEV	PROC12
	Industriat - SU 3	Loading/packaging for transport to customers	CS128	Indoor, ambient temp. Dedicated equipment.	Forced ventilation	NO LEV	PROC8b
	(ndustrial , SU 3	Steam-heating and expansion of expandable polystyrene granulate	CS129	4% blowing agent in granulate; Elevated temperature	Ventilation, waste air treatment	NO LEV	PROC12
	industria) - SU 3	Storage and ageing of partially expanded polystyrene granulate	CS129	Open silo's; 3% blowing agent in granulate	Vented silo	NO LEV	PROC12
	Industrial - SU 3.	Moulding and block forming with expanded polystyrene granulate	CS130	Use of steam in partially closed moulds; elevated temperature; 2% blowing agent in granulate	Local exhaust ventilation (80%)	With LEV	PROC12
	industrial - SU 3:	Storage and cutting of expanded polystyrene articles	CS131	Vented storage; cutting by heated wire; 1% blowing agent in granulate	Forced ventilation	With LEV	PROC12
	(ndustrial - SU 3	Injection and mixing into pre- reaction component in blending tank	CS29	Closed system, ambient temp. Assume 5% agent in blend	Closed system	With LEV	PROC3
	Ir(dųstria) - SU 3	Drum filling blended mix	CS6, CS45	Indoor, ambient temp.	Filling station under LEV; remotely operated	With LEV	PROC9
	industria) - SU 3	Foam production through mixing of reactive components	CS132	Indoor, ambient temp. Automated machinery.	Foaming area under LEV (slot design and/or enclosure)	With LEV	PROC12
	Industrial - SU 3	Foam compression to expel residual blowing agent	CS133	Indoor, ambient temp. Automated machinery.	LEV/endosure	With LEV	PROC12
	Industrial - SU 3	Foam article automated cutting	CS131	Enclosed area (no operator) under LEV; only traces of blowing agent left	LEV/endosure	With LEV	PROC12

## 1.8 Use in Agrochemicals – Professional

			Table 1: Mapp	oing Uses in the	Supply Chain		
				Typical Mapped	Typical Ma	pped RMMs	Use Descriptor
	User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent
Use in Agrochemicals	Professional- SU22	transfer from/pouring from containers	CS22	Daily; 15 mins - 1 hour; ambient temp	gloves	No LEV	PROC8b Discharging to/from vessels
10 and 50 checked and GESs revised	Professional SU22	mixing in containers	CS23	Daily; 15 - 1 hour; ambient temp.	outdoors. Gloves	No LEV	PROC4 Closed batch process (with sampling)
	Professional SU22	spraying and fogging by manual application.	CS24	Daily; 1-4 hours; ambient temp;	outdoors. Full protective body suit and RPE.	No LEV	PROC11 - Non industrial spraying
	Professional SUZZ	spraying and fogging by machine application	CS25	Daily; 1-4 hours; ambient temp;	ventilated cab	With LEV	PROC11 - Non industrial spraying
	Professional: SU22	small ad hoc application via dipping, trigger sprays, etc	CS27	<1 hours daily; ambient temp.	none	No LEV	PROC13 - Treatment of articles by dipping and pouring
	Professional - SU22	cleandown and maintenance of equipment	CS26	<1 hours daily; ambient temp.	Retain drainings in sealed storage pending disposal. PPE.	No LEV	PROC8a Discharging to/from vessels
	Professional SU22	disposal of wastes	CS28	<1 hours daily; ambient temp.	outdoors. Gloves	No LEV	PROC8a Discharging to/from vessels
	Professional SV22	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC1
	Professional - SU23	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC2 Closed continuous process (sometimes with sampling)

## 1.9 Use as a Fuel – Industrial

		Table 1: Mapping Uses in the Supply Chain									
				Typical Mapped Operating	Typical Ma	pped RMMs	Use Descriptor				
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent				
Use as a fuel	Industrial -SU3	Bulk transfers (barge, rail and road)	CS14	Daily; 1 - 4 hours; ambient temp.	Enclosed transfers, clear lines prior to decoupling	No LEV	PROC8b Dedicated Discharging to/from vessels				
	Industrial -SU3	Transfers from drums and containers	CS8	Daily; 1 - 4 hours; ambient temp.	Pumped transfer from drum to equipment	No LEV	PROC8b Dedicated Discharging to/from vessels				
	Industrial -SU3	General use exposures as a fuel	CS15	Daily; >4 hours	Closed equipment	No LEV	PROC1 Use as a fuel				
	Industrial -SU3	General use exposures as a fuel	CS15	Daily; >4 hours	Closed equipment	No LEV	PROC2 Use as a fuel				
	Industrial -SU3	Use a fuel	CS15 CS107	Daily; >4 hours, to 100%	Closed equipment	No LEV	PROC16 - use as a fuel				
	Industrial -SU3	Use a fuel additive diluent	CS15 CS107	Daily; >4 hours, to 100%	Closed equipment	No LEV	PROC3 Closed batch process (with sampling)				
	Industrial -SU3	Vehicle/boiler maintenance	CS39 (changed from CS5)	Daily; >4 hours, to 100%	PPE. Operator training.	No LEV	PROC8a Non- dedicated Discharging to/from vessels				
	Industrial -SU3	Cleaning fuel storage tanks	CS103	Infrequent; >4 hours	vessel entry procedures, retain wash down in sealed storage pending disposal,. PPE.	With supplied air ventilation, PTW	PROC8a Discharging to/from vessels				
	Industrial -SU3	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC1 Closed continuous process (sometimes with sampling)				
	Industrial -SU3	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC2 Closed continuous process (sometimes with sampling)				

## 1.10 Use as a Fuel – Professional

	Table 1: Mapping Uses in the Supply Chain									
				Typical Mapped Operating	Typical Ma	pped RMMs	Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent			
Use as a fuel	Professional- SU22	Bulk transfers (e.g. heating oil and diesel deliveries)	CS14	Daily; 1-4 hour; ambient temp., Outdoors	Enclosed transfers, clear lines prior to decoupling	No LEV	PROC8b Dedicated Discharging to/from vessels			
	Professional 8022	Transfers from drums and containers	CS8	Daily; 15 mins - 1 hour; ambient temp	Pumped transfer from drum to equipment	No LEV	PROC8b Dedicated Discharging to/from vessels			
	Professional 3022	Refuelling vehicles, light aircraft or marine	CS-I Refuelling - Concawe	Daily; >4 hours, to 100%	Pumped transfer to vehicle	No LEV	PROC8b Dedicated Discharging to/from vessels			
	Rrofessional - SU22	General use exposures as a fuel	CS15	Daily; >4 hours	Closed equipment	No LEV	PROC1 Use as a fuel			
	Professional 6022	General use exposures as a fuel	CS15	Daily; >4 hours	Closed equipment	No LEV	PROC2 Use as a fuel			
	Professional 6022	Use a fuel additive diluent	GES16, CS15 CS107	Daily; >4 hours, to 100%	Closed equipment	No LEV	PROC3 Closed batch process (with sampling)			
	Professional SU22	Use a fuel	GES16, CS15 CS107	Daily; >4 hours, to 100%	Closed equipment	No LEV	PROC16 - use as a fuel			
		Equipment maintenance e.g. Vehicle, boiler, pump maintenance, pump calibration	CS39	Daily; >4 hours, to 100%	PPE. Operator training.	No LEV	PROC8a Discharging to/from vessels			
	Professional SU22	Vessel / container cleaning	CS103	Daily; >4 hours, to 100%	vessel entry procedures, retain wash down in sealed storage pending disposal. PPE.	With LEV	PROC8a Discharging to/from vessels			
	Professional SU22	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC1 Closed continuous process (sometimes with sampling)			

## 1.11 Use as Functional Fluids – Industrial

				Table 1: Ma	pping Uses in the	Supply Chain		
					Typical Mapped Operating	Typical Ma	pped RMMs	Use Descriptor
	User G	roup	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent
Functional fluids	Industrial	-SU10	Bulk transfers to/from storage	CS14, CS107	Daily; 15 min - 1 hour; ambient temp	Enclosed transfers, clear lines prior to decoupling	No LEV	PROC1 Closed continuous process (sometimes with sampling)
	industrial	-SU10	Bulk transfers to/from storage	CS14, CS107	Daily; 15 min - 1 hour; ambient temp	Enclosed transfers, clear lines prior to decoupling	No LEV	PROC2
10 and 50 checked and GESs revised	Industrial	-SU10	Transfers from drums to filling machinery	CS8	Daily; 15 min - 1 hour; ambient temp	Pumped transfer from drum to holding tanks.	With LEV	PROC8b Discharging to/from vessels
	Industrial	-SU10	filling articles from predominantly enclosed machines	CS53 delete, CS84, CS107	Daily; >4 hours, ambient	enclosed operations, size of openings minimised	With LEV	PROC9 Transfer of chemicals into small containers
	Industrial	-SU10	manual filling of machines	CS45	Daily; 1-4 hours, ambient	careful pouring, worker instructions	With LEV	PROC8a Discharging to/from vessels (non-dedicated)
	Industrial	-SU10	operation of closed equipment containing functional fluids	CS15	Daily; >4 hours, ambient	None.	With LEV	PROC2
	Industrial	-SU10	operation of open equipment containing functional fluids at elevated temperatures	CS16	Daily; >4 hours, ambient (product at 80oC)	None.	With LEV	PROC4 Use in batch and other process
	Industrial	-SU10	Re-work on off specification articles	CS19	Daily; >4 hours, ambient	work methods, drain prior to work, retain spills	With LEV	PROC9 Transfer of chemicals into small containers
	Industrial	-SU10	maintenance of equipment	CS5	Daily; 1-4 hours, ambient	work methods, drain prior to work, retain spills, gloves	With LEV	PROC8a Discharging to/from vessels (non-dedicated)
	Industriaf	-SU3	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC1 Closed continuous process (sometimes with sampling)
	Industrial	-SU3	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC2 Closed continuous process (sometimes with sampling)

## 1.12 Use as Functional Fluids – Professional

			Table 1: Map	ping Uses in the	Supply Chain		
				Typical Mapped	Typical Map	pped RMMs	Use Descriptor
	User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent
Functional fluids	Professional- 6022	Transfers from drums to filling machinery	CS8	Daily; 15 min - 1 hour; ambient temp	Pumped transfer from drum to holding tanks.	With LEV	PROC8a Discharging to/from vessels (non-dedicated)
	Professional 9022	filling from small containers e.g. cans	CS22	Daily; >4 hours, ambient	enclosed operations, size of openings minimised, LEV to emission points	With LEV	PROC9 Transfer of chemicals into small containers
	Profesional auzz	manual filling from drums	CS45	Daily; 1-4 hours, ambient	Pumped transfer from drum to article/machine	With LEV	PROC9 Transfer of chemicals into small containers
	Professional SV22	operation of equipment containing functional fluids	CS15	Daily; >4 hours, ambient	None.	With LEV	PROC1
	Professional- SU22	operation of equipment containing functional fluids	CS15	Daily; >4 hours, ambient	None.	With LEV	PROC2 Closed continuous process (sometimes with sampling)
	Professional - SU22	operation of equipment containing functional fluids	CS15	Daily; >4 hours, ambient	None.	With LEV	PROC3
	Professional- 6022	operation of equipment containing functional fluids	CS16	Daily; >4 hours, ambient	None	With LEV	PROC20 Heat and pressure transfer fluids (closed systems)
	Professional SU22	operation of equipment containing functional fluids at elevated temperatures	CS16	Daily; >4 hours, ambient (product at 80oC)	None.	With LEV	PROC20 Heat and pressure transfer fluids (closed systems)
	Professional 5N22	Re-work on off specification articles	CS19	Daily; 1-4 hours, ambient	work methods, drain prior to work, retain spills	With LEV	PROC9 - Transfer of chemicals into small containers
	Professional SU22	maintenance of equipment	CS5	Daily; 1-4 hours, ambient	work methods, drain prior to work, retain spills, gloves	No LEV	PROC8a Discharging to/from vessels (non-dedicated)
	Rrofessional- St/22	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC1 Closed continuous process (sometimes with sampling)
	Professional 3022	Storage	CS67	Daily; 8 hrs; ambient temp;	samples collected at dedicated sample point	No LEV	PROC2 Closed continuous process (sometimes with sampling)

## 1.13 Use in Laboratory Applications – Industrial

		Table 1: Mapping Uses in the Supply Chain									
				Typical Mapped	Typical Ma	pped RMMs	Use Descriptor				
	User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent				
Use in	Industrial - SU3.	CS36 Laboratory	CS36	Continuous; daily;	Fume cupboard or	Ves	PROC15				
laboratories	8, etc	activities		> 4 hour; ambient temp.	ventilated glove- box; Bench- mounted local extract ventilation; Controll ed general ventilation (10 ACH); selected disposable gloves		110015				
	Industrial - SU3; 8; etc	CS47 Cleaning [wiping, brushing, flushing]	CS47	Continuous; daily; 15 min - 1 hour/d; ambient temp.	Fume cupboard or ventilated glove- box; Bench- mounted local extract ventilation; Controll ed general ventilation (10 ACH); selected disposable gloves		PROC10				

## 1.14 Use in Laboratory Applications – Professional

		Table 1: Mapping Uses in the Supply Chain									
			Typical Mapped	Typical Mar	ped RMMs	Use Descriptor					
User Group	Contributing Scenarios	CS Ref	Operating Conditions	Text	LEV	Process Category equivalent					
Professional -	CS36 Laboratory	CS36	Continuous; daily;	Fume cupboard or	With LEV	PROC15					
5022	activities		temp.	box; Bench- mounted local							
				ventilation;Controll ed general							
				ACH);selected disposable gloves							
Professional - SU22	CS47 Cleaning [wiping, brushing,	CS47	Continuous; daily; 15 min - 1 hour/d;	Fume cupboard or ventilated glove-	Without LEV	PROC10					
	flushing]		ambient temp.	box; Bench- mounted local							
				extract							
	Professional - SU22	Professional - CS36 Laboratory SU22 activities  Professional - CS47 Cleaning	Professional - CS36 Laboratory activities  CS36 Laboratory activities  CS36 Laboratory activities  CS37 Cleaning [wiping, brushing, color of the col	User Group  Contributing Scenarios  CS Ref  CS Ref  Conditions  CS36 Laboratory activities  CS36 Continuous; daily; > 4 hour; ambient temp.  Professional:  CS47 Cleaning Wiping, brushing, 15 min - 1 hour/d;	User Group  Contributing Scenarios  CS Ref  Conditions  CS Ref  Conditions  Text  Text  Conditions  CS Ref  Continuous; daily; Fume cupboard or ventilated glove-box; Benchmounted local extract ventilation; Controll ed general ventilation (10 ACH); selected disposable gloves  Professional - CS47 Cleaning [wiping, brushing, flushing]  CS Ref  Continuous; daily; Fume cupboard or ventilation (10 ACH); selected disposable gloves  CS47 Cleaning [wiping, brushing, flushing]  CS47 Continuous; daily; Fume cupboard or ventilated glove-box; Benchmounted local	User Group  Contributing Scenarios  CS Ref  Conditions  CS Ref  Conditions  Text  LEV  Professional - CS36 Laboratory activities  CS36 Continuous; daily; Fume cupboard or ventilated glove-box; Benchmounted local extract ventilation; Controll ed general ventilation (10 ACH); selected disposable gloves  Professional - CS47 Cleaning [wiping, brushing, flushing]  CS47 Cleaning [wiping, brushing, flushing]					

# Appendix 1B Use Mapping/Operational Conditions — Consumer

## 1.1 Uses in Coatings – Consumer

## TRA

Table	1: Mapping Cor	sumer Uses in the Su	pply Chain			Table	e 2a:	Character	ising the Risk - ba	sed on defaul	ts (ECETOC	TRA Consun	ners)	
				all	all				all	-	0	i	i	i .
Generic Exposure Scenario	Area of Application	Relevant Use Sentinel Product	Product sub Category Sentinels	Product ingredient (g/g)	adult / child			Product is	frequency (events per day)	Skin surface contact area (cm2)	Amount Swallowed (g)	Amount Used per event (g)	room volume (m3)	exposure time (hr)
Short Title	/UD				d	o i		spray? (S)						
Coating	Consumert-SU21	PC1:Adhesives, sealants	Glues, hobby use	0.3	А	A	Ą		1	35.73		9	20	4
Covers the use in coatings (paints, inks,	Çênsamert-SU21	PC1:Adhesives, sealants												
adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.			Glues DIY-use (carpet glue, tile glue, wood parquet glue)	0.2						400.75		45000	200	
PC1, PC4, PC8, PC9,	Consumert-SU21	PC1:Adhesives, sealants		0.3	Α		4		<u>'</u>	428.75		15000	20	
PC15, PC18, PC23, PC24, PC31,PC34, (PC5, PC10)			Glue from spray	0.3	Α	А	4	s	1	35.73		255	20	4
	Consumeri-SU2†	PC1:Adhesives, sealants	Sealants	0.3	А	A	Ą		1	35.73		390	20	4
	:Consumert-SU21	PC4_n:Anti-freeze and de- icing products	Washing car window	0.01		А	A		1			0.5	34	0.017
	Consomert-SU21	PC4_n:Anti-freeze and de-icing products	Pouring into radiator	0.1	Δ				1	857.5		2000	34	0.167
		PC4_n:Anti-freeze and de-	Lock de-icer	0.5			`		1	214.4		2000	34	0.25
	:Consumeri-SU2t	icing products PC8_n: Biocidal products	Laundry and dish washing	0.0	_		١	5	'	214.4		4	34	0.23
		(excipient use only for solvent products)	products	0.6	Α	А	A		1	857.5		50	20	1
	Consumeri-SU2†	PC8_n: Biocidal products (excipient use only for solvent products)  PC8_n: Biocidal products	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) Cleaners, trigger sprays (all	0.5	А	A	4		1	857.5		250	20	0.33
	Cousumerrauz	(excipient use only for	purpose cleaners, sanitary											
	Conscional Clini	solvent products)	products, glass cleaners)  Waterborne latex wall paint	0.2	Α	А	Ą	s	1	857.5		35	20	4
	Consumert-SU21	PC9a:Coatings and paints, fillers putties, thinners PC9a:Coatings and paints,	Solvent rich, high solid,	0.5	Α	А	4		1	428.75		3750	20	2.2
		fillers putties, thinners	water borne paint	0.5	Α	А	A		1	428.75		1300	20	2.2
			Tier 2: ConsExpo estimates											
		PC9a:Coatings and paints, fillers putties, thinners PC9a:Coatings and paints,	Aerosol spray can  Removers (paint-, glue-,	0.5		А	A	s	1			300	20	0.33
	Cousument-0,02 F	fillers putties, thinners	wall paper-, sealant-	0.9	Δ.		١		1	857.5		2000	20	4
	Consumert-SU21	PC9b:Fillers, putties, plasters, modeling clay	remover) Fillers and putty	1	A	A	\ \		1	35.73		1000	20	4
	:Consumeri-SU2†	PC9b:Fillers, putties, plasters, modeling clay	Plasters and floor equalizers	1	A	Δ.			1	857.5		25000	20	2
	Consumert-SU21	PC9b:Fillers, putties,	Modelling clay							-				_
		plasters, modeling clay		0.1		С			1	254.4	1		20	
		PC9c:Finger paints PC15_n: Non-metal	Finger paints Waterborne latex wall paint	0.5	С	С			1	254.4	1.35		20	
		surface treatment		0.5					1	428.75		3750	20	2.2
	Consumert-SU21	products PC15_n: Non-metal surface		0.0			`			120.70		0,00	2.0	
		treatment products	water borne paint	0.5	А	A	A		1	428.75		1300	20	2.2
			Tier 2: ConsExpo estimates											
	Consumeri-SU21	PC15_n: Non-metal surface treatment products	Aerosol spray can	0.5			<u> </u>	s				300	20	0.33
	Consumert-SU21	PC15_n: Non-metal surface	Removers (paint-, glue-,	0.5			1	U	'			300	20	0.33
		treatment products	wall paper-, sealant- remover)	0.9		A	A		1	857.5		2000	20	. 4
-	Consumert-SU21		Inks and toners. Polishes, wax / cream (floor,	0.1	A	A	Α		1	71.4		40	20	2.2
		dye, finishing, impregnation and care products	furniture, shoes)											
	Çênsamert-SU21	PC23_n: Leather tanning, dye, finishing, impregnation and care products	Polishes, spray (furniture,	0.5	Α	A	4		1	857.5		56	20	1
	Consumert-SU21		shoes)	0.5	Α	A	A	s	1	857.5		56	20	1
	-Ceusun(6ff-5,U21	and release products	Elquius	0.5	А	A	A		1	857.5		5000	20	4
	Çonsumeri-Su21		Tier 2: skin permeability for dermall- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1											
]	- anaumon-ouz i	PC24: Lubricants, greases, and release products		0.2	A				1	857.5			20	
	:Consumeri-SU21	PC24: Lubricants, greases,	Sprays											
	:Consumeri-SU21	and release products PC31:Polishes and wax	Polishes, wax / cream (floor,	0.5		A	4	s	1	428.75		300		4
	Çênspirreit-SU21	blends PC31:Polishes and wax	furniture, shoes) Polishes, spray (furniture,	0.5		A	A		1	857.5		550	20	4
	Gonsumeri-SU21	blends PC34_n: Textile dyes,	shoes)	0.5	Α	A	4	s	1	857.5		135	20	4
		finishing and impregnating products	1	0.1	А	A	A		1	857.5		115	20	1

## TRA+

Table 1: N	Aspping Cons	umer Uses in the S	apply Chain										Table 2b: Char					oosure estimate										
Generic Exposure		Relevant Use Sertinel	Product sub Category Sentinels	all		all		dermal		dermal		dentral		demal TER1+	oral ECETOC T		inhalation emodifiers		inhalation		Inhalation	inhalation		nha lation	inhalation		nhalation	
Short Title	Area of Application / UC	•		Product ingredient (weight fraction) (p/g)		Frequency (events per day): if < 1, only used for chronic assessment	L'on ments	Skin surface contact area (cm2)	Comparity	Use Diution Factor	Vomments	Dermal Factor	Konosite	Glave effency	Amount Sivaliowed (g)	- COMPANY	Amount Used per event(g)	Vennum	inhalation Fac total use spille i.e., amo	tor fraction of dievaporated, untiliset)	Location (indoors, outdoors, garage)	Air Eachunge Rate (1 ftr)		Nution Factor noneporating Air Exchange Rate applied o TRA for mg/kg nhalation calc.	Room Volume (m3)	Vicenzanti.	Exposure time (hours)	Vormen
Coaling	Consumeri 602		Glues, hobby use	0.2	TRA default	1	TRA default	35.7291667	TRA default			0.0027					9	TRA default			indoor, typical	0.6	RIVM general fact sheet	0.379	20	TRA default		TRA default
Covers the use in coatings (paints, risks, adhesives, etc) including exposures during use (including product transfer and preparation, application by trush, prayby hand or similar methods) and equipment cleaning.	Charles St. 2	PCI:Adheshes, sedarts	Gluss DIY-use (carpet glus, tileglus, wood parquat glus)		TRA default	60607	R/M do it yourself use, parquest and floor glue all < 1/yr, here used flyr		RIVIA: (however, e.st. 35.7 fingerigs may be note realists for an adhesive product)			05040					6390	Internet search indicates 50 200 square feet coverage per gallon for floor glue, for a 20 nd room - 705 feetd, assuring if in height, glees a floor area of 8 Baquare feet and would use at most 1.70 glees 200 fregation and gallone (6000 grants; sall paper glee at 200 fregation and assuring with surface of 206 sq ft would be 1.1 gallons : Ref 3			indoor, typical	0.6	sheet RVM general fact sheet	0.270	R	TRR default		TRA default
PC1, PO4, PC8, PC9, PC15, PC16, PC20, PC21, PC21, PC34, (PC5, PC10)	Godennen GD2	PCI:Adheshes, sealants	Glue from spray		TRA default	0.0 10-138355	USEPR 2009 draft ERH Table 17-4, 75th percentile adhesive use	110	TRA default			0.0027					8505	USE PA 2009 draft EFH indicates 75th percentile adhesive uselyear is 2 oz, used this as consistent with spray glue can size of 4 oz and more than one			indoor, typical	0.6	RIVM general fact sheet	0.379	20	TRA default		TRA default
	Consume(Str)	PCI:Adhesives, sealarts	Se stants	0.3	TRA default	1	TRA default	38.7291667	TRA default			0.0007					**	SRV Mijoint selant			indoor, typical	0.6	RIVM general fact sheet	0.752	20	TRA default		The 95th percentile for adhesive exposure time USEPA EFH 2009 draft Table 17-5
	Consumer SM2	PC4_rxAnti-freeze and de-king products	Washing car window	0.2	ACC offees an EU RA		estimated as conservative frequency used in a	35.7291667										ACC dites on EU RA			Sande	1.5	RIVM general fact sheet	0.988	34	RVMgeneral fact sheet		ACC class an EU RA
	Consumerica (2)	PC4_n.Anti-freeze and de-iding products	Pouring into radiator	0.01	estimated as 10 times concentration used in ACC windscreen scenario		carsos conservative estimate a ssumes as daily use		based upon 1 hand			0.0003					0.5	estimated about half of a typical container	0.05	extimate 5% lost during pouring	Gasde	1.5	RIVM general fact sheet	0.885	34	RVMgeneral fact sheet	0.017	estimated time pouring into reservoir
		PC4_rcAnti-freeze and de-king products	Lock de-loer	0.5	estimated based upon use as a common TRA default	1	conservative extinate assumes as daily use	214.4	est. Singers of one hand			0.0001					4	est, amount of one spray into a lock; internet search indicates lock delcers sold in about 20 g stree; note wind shield de-loar sold in larger sizes (11 oz) but would only be needed on a we hicle parked outdoors.			garage	15	RIVM general fact sheet	HC8.0	34	RVMgeneral of fact sheet	325	estimated time to spray and open lock
	Qmilm(sez	PCB_rx Bloodal products (susplent us onlyfor solvent products)	Caundry and dish washing products	0.05	RVM	1	TRA default	857.5	TRA default	0.01	est. 100-bid din with water (ASE indicates 10 mg/cm3 product conc. is	0.002					15	5 from EFH dishwashing, laundry liquid 150 g in HERA- est. 90% down the drain, exposure to 15g			indoor, typical	0.6	RIVM general fact sheet	0.864	20	TRA default	0.5	HERA dah washing duration ignester than bunday
	Construct Std	PCE_n Bloodal products (supplient us only for solvent products)	Cleaners, liquids (all purpose cleaners, santanyproducts, foor deaners, glass cleaners, carpet cleaners, metail disaners)	0.05	RIVM	0.35	CFH 2009 mean use frequency, table 17-37 liquid all purpose deaner	857.5	TPA default	1	(up to 1 in AISE)	0.0013	Previously used"1" as dermal transfer factor (up to I in ASE)				27	EFH 2009 mean liquid purpose cleaner			Indoor, typical	0.6	RIVM general fact sheet	0.907	20	TRA default (	0.33	EFH 2009
	CloquitmerPSU2	PCS_rr Blocksi products (exciplent us onlyfor solvent products)	Cleaners, trigger sprays (all purpose cleaners, sentanyproducts, glass cleaners)	0.15	RVM	0.35	EFH 2009 mean use frequency, table 17-37 liquid all purpose cleaner	428	est lower skin contact for spray than liquid, wiping with one hand TDA debut			0.0002					z	TRA default			indoor, typical	0.6	RIVM general fact sheet	0.952	R	TRA default	0.17	HERA and SDA maximum use time
	GenteumenGD2	PCSs Costings and paints, filters putties, thinners	Waterborne latex wall paint	0.015	REVM paint fact sheet solvent percentage	0.011	RIVM paint fact sheet	428.75				0.0290					2760	est. 400 sq ftper galon, forwalls of 20 m3 room est. 304 sq ft or 0.76 gallons = 2760 g; consistent with EPA 2009 EPH 75th percentile			indoor, typical	as	RIVM general fact sheet	0.552	20	TRA default	2.2	
	Constructions Consumers 612	PC9s Coatings and paints, fillers putties, thinners	Solventrich, high solid, water borne paint Aeroeol spray can	02/0	RIVM paint fact sheet TRA default	0.016	RIVM paint fact sheet	428.75	TRA default			0.0016					744 215	with EPA 2009 EPH 75th percentile EPH 2009 75th percentile oil paint EPH 2009 75th percentile ap my paint			indoor, typical garage	0.6	RIVM general fact sheet RIVM	0.536	20	TRA default	2.2	TRA default
	ClosedmerF6U2	PCSs:Costings and paints, fillers putties, thippers PCSs:Costings and paints, fillers putties, thippers	Removers (paint, glue-, wall paper-, sealant- remover)		RIVM paint fact sheet	0.000219178	RIVM 2 uses per year EPA EPH 75th percentile table 17- 4 paint removers		TRA default			0.0008					491	paint EFH 2009 75h percentile			indoor, typica	0.6	RIVM	0.582	20	RVMgeneral fact sheet TRA default	0.3	EPA EFH 2009 75th percentile
	Consumer(602	paints, fillers purties, thinners PCSb Fillers, putties	wall paper-, sealant- remover) Filters and pulty	0.02		0.032876712	percertile table 17- 4 paint removers infrequent use, est 12/y	857.5	TRAdebult			0.04					E	Est. 3 oz consumer use (internet			indoor,	0.6	general fact sheet RWM	0.379	20	TRA default	4	2009 75th percentile TRA default
	Carlacter	plasters, modeling city J PCS0:Fillers, publies, plasters, modelinocia	Plasters and floor	002	EstProduct function requires product to remain, expect -solvent amount in water booms paint	6032876712	12'yr Infrequent use, est 12'yr	35.7291667	TRA default			0.02					13000	search indicates tubes sold in 1 and 3 or sizes)			indoor, typical	0.5	general fact sheet	0.502	~	TRA default		TOS definer
	Charles (SA2)	PCSb Fillers, putters planters, modeling	equalizers blockling day	0.01	Productfunction requires product to remain, expect recivent amount in water borne point Eat. solvent concentration	1	12/yr TRA default	857.5	TRAdebuit				previously used 10.05" as dermal		1	TRA defaut		Internet search indicates about 7.5L (13.8 kg) ready to m8 plaster to cover 31 m2 surface area (est. walls of 20 m3 soon)			indoor, typical		RIVM general fact sheet		_			2
		plasters, modeling city PCSc:Ringer paints			concentration  TRA default		TRA default	254.4	TRA debut				10.05° as dermal transfer factor; as clays are solid, based upon EPA 600/R-07.060F transfer factor for treated surfaces															
	Consumer(St/2) Consumer(St/2)	PC15 n:Non-metal	Waterborne lates wall paint	0.5	RIVM paint fact sheet solvent percentage	,	RNM paint fact sheet	254.4	TRAdebult			00293			1.35	TRA default	2760	est. 400 sq tipergation, forwalls of 20 m3 room est. 304 sq ft or			indoor, typical	0.6	RIVM general fact sheet	0.555	20	TRA default	2.2	TRA default
	Closedmer (%17)	products  PC15_x: Non-metal surface treatment	Solventrich high print	0.015	d .	0.011	RIVM paint fact sheet	428.75	TRAdebut			00016		<u> </u>			744	0.76 gallons = 2760 g; consistent with EPA 2009 EPH 75th percentile EFH 2009 75th percentile oil paint				ns	sheet RIVM	0.555	20	TRA defair	2.2	TBA defa-in
<u> </u>	Closedmer/SU2 Consume(SU2	surface treatment products PC15_ix Non-metal	Solventrich, high solid, water borne paint	0.275	RIVM paint fact sheet TRA default	0.005	sheet RIVM 2 uses per year	428.75							$\vdash$		215	paint EPH 2009 75th percentile spray paint			indoor, typical garage	1.5	general fact sheet RIVM	0.789	34	RVMgeneral fact sheet	033	TRAdefault
<del>                                     </del>	Consumers 602	PC15_x: Non-metal surface treatment surface treatment sorducts	Aerosol spray can Removers (paint- glue-, wall paper-, sesiont- remover)	0.5	RFWI paint fact sheet	0.000219178	gear EPA EFH75th percertile table 17- 4 paint removers	857.5	TRAdebut			00000			<del>                                     </del>		491	spray paint EPH 2009 75th percentile			indoor, typical	0.6	general fact sheet RIVM general fact sheet	0.582	20	TRA default	2	EPA EFH 2009 75th percentile
	Qual might?	PC18_pt lisk and somers	war paper-, sealant- re-mover)	0.1	est. solvent conc.	1	conservative assumption daily use	714	fingertips of 2 hands (contact with paper or during cartridge transfer)			02004					40	Internet search indicates link cartridges range from 9-40 g. assume entire one used			indoor, typical	0.6	RIVM general fact sheet	0.595	20	TRA default	2.2	est several hundred pages may be print out over this time
	Cosedner9912	PC23_n: Leather tarning, dye, finishing impregnation and care products	Inks and loners. Polishes, wax / cream (floor, furniture, shoes)	0.5	PC 21 TRA default	0.08	PC31 value	400	PC 21 RhM - fumiture cream polish			00005					26	est. 55 gluse as internet search indicates leathercare sold in 3-4 or liquids and sprays, est. about 1/2 per use			Indoor, typical	0.6	RIVM general fact sheet	6.707	20	TRA default	123	this time period EFH 2009 75th percentile woodpanel
	Compres (SN2	PC23_x Leather taming, dys, finishing, impregnation and care products	Polishes, spray (furniture	0.5	PC 31 TRA default	0.021917808	PC31 value	400	PC 31 R/M - funiture oream polish			00001					55	est. 56 glues as internet search indicates leathercare sold in 2-4 oz liquids and sprays, est. about 12 per use			indoor, typical	0.6	RIVM general fact sheet	0.906	20	TRA default	033	Chaner  CFH 2009  75th  percentile spray shoe oolieh  EPA EFH 2009 75th percentile
	Coppling PSQ12	PC36: Lubifcants, greases, and release products	ahoog Coguids	1	increased above TRA default	0.0 10 958 904	EPA EFAST model motor oil	400	EPA EPAST 7.8 cm2/kg, adjusted to 60 kg			0.000					2200	Est changing 2 quarts (2200 g)	0.01	est loss of «1% total product used via spillage or evaporation	gange	1.5	RIVM general fact sheet	288.0	34	RVMgeneral fact sheet	017	EPA EFH 2009 75th percentile
	CofemenS02	PCSN: Lubricants, greases, and misses oroducts	Parties	0.2	TRA default	6.02730726	EFH 2009 Table 17 4	460	TRAdebut								м	EFH 2009 75th percertile use 1.2 od use										
	Consumer/SN2	PCDI: Lubricarts, greases, and misses products PCDI: Polishes and	Sprays Polithes, way former	0.5	TRA default	0.016-438356	EFH 2009 spray lubricants for cars, 75th percentile RAM	428.75	TRA default			0.0001					73	EFH 2009 75h percentile EPA EFH 2009 furniture cream			indoor, typical	0.6	RIVM general fact sheet RIVM	0.952	20	TRA default	0.1	EPA EFH 2009 75th percentile, 7 Table 17-5 EFH 2009
		wax blands	Polishes, wax / cream (floor, furniture, shoes)		TRA default	0.021917808	EEU 2000 av-	430	RMI - fumbus cream polish			0.0001					*	EEU 2000 Tonnament			indoor, typical	100	sheet	1996	_	TRA default	1.2	EFH 2009 75th percentile woodpanel cleaner EFH 2009 75th percentile apply shoe
	Companists	PC31 Polishes and was blends	shoet)	0.5	or schedus	www.d1/808	EFH 2009 spray shoe polish, 79th percentile Common TRA	430	as above, although expect lower because spray	0.01	Information with	0.0001						EFH 2009, 75th percentile shoe polish			. now; typica	40	RIVM general fact sheet	0.750	20	TOS Artes	0.3	75th percentile spray shoe option
		finishing and impregnating products			-J. samericano	·	defaults	857.5			indicates 4 oz liquid dye added to 3 gallons of water (* 0.01 diution factor)	0140					****	est. 4 cz (115g) per event based upon internet use information			indoor, typical		general fact sheet		4			indicates children can remain in dye bath up to 1 hour

## 1.2 Uses in Cleaning – Consumer

TRA

Table	1: Mapping Con	sumer Uses in the Su	oply Chain	all	all	Tab	le 2a:		ising the Risk - ba			TRA Consun	ners)	
										d Skin surface	0	i	i	i
Generic Exposure Scenario		Relevant Use Sentinel Product	Product sub Category Sentinels	Product ingredient (g/g)	adult / child				frequency (events per day)	contact area (cm2)	Amount Swallowed (g)	Amount Used per event (g)	room volume (m3)	exposure time (hr)
Short Title	Area of Application / UD							Product is spray? (S)						
Cleaning	Consumert-SU21	PC3:Air care products	Air care, instant action	0.5	d	0			,			10	20	0.2
Covers general	:Consumeri-SU21	PC3:Air care products	(aerosol sprays)	0.0			A	5	-			10	20	0.2
exposures to consumers arising from														
the use of household products sold as			Air care, instant action											
washing and cleaning products, aerosols,			(aerosol sprays)-pesticidal- excipient only											
coatings, de-icers,														
lubricants and air care products.				0.5	5		A	s	4			10	20	0.25
PC3, PC4, PC8 (excipient only), PC9,	Consumerl-SU21	PC3:Air care products	Air care, continuous action											
PC24, PC35, PC38	Consumert-SU21	PC3:Air care products	(solid and liquid) Air care, continuous action	0.1	Α		A		1	35.7		50	20	8
	Cottaunterration	r co.rui care products	(solid and liquid)-pesticidal-	0.1	_					35.7		50	20	
	Consumert-SU21	PC4_n:Anti-freeze and de-	excipient only Washing car window							30.7				
	:Consumeri-SU21	PC4 n:Anti-freeze and	Pouring into radiator	0.01			A		1			0.5	34	0.0167
		de-icing products	<b>5</b>	0.1	А		A		1	857.5		2000	34	0.1667
		PC4_n:Anti-freeze and de- icing products	Lock de-icer	0.5	A		Α	s	1	214.4		4	34	0.25
	Consumert-SU21	PC8_n: Biocidal products (excipient use only for	Laundry and dish washing											
	Çênsumert-SU21	solvent products)	products	0.6	A		A		1	857.5		50	20	
	Çetisünteli etez i	PC8 n: Biocidal products	Cleaners, liquids (all purpose cleaners, sanitary											
		(excipient use only for solvent products)	products, floor cleaners, glass cleaners, carpet											
		suvent products)	cleaners, metal cleaners )	0.5	A		A		1	857.5		250	20	0.333
	:Consumeri-SU21	PC8_n: Biocidal products (excipient use only for	Cleaners, trigger sprays (all purpose cleaners, sanitary											
		solvent products)	products, glass cleaners)	0.2						857.5		35	20	
	:Consumeri-SU21	PC9a:Coatings and paints,	Waterborne latex wall paint	0.2			м	3	·	037.0			20	
		fillers putties, thinners		0.5	A		A		1	428.75		3750	20	2.2
	:Consumeri-SU21	PC9a:Coatings and paints, fillers putties, thinners	Solvent rich, high solid, water borne paint											
				0.5	A		A		1	428.75		1300	20	2.2
	Consumert-SU21	PC9a:Coatings and paints, fillers putties, thinners	Aerosol spray can	0.5					۱ .			300	20	0.333
	Consumert-SU21	PC9a:Coatings and paints,	Removers (paint-, glue-,	0.5			A	S	'			300	20	0.333
		fillers putties, thinners	wall paper-, sealant- remover)	0.9	A		A		1	857.5		2000	20	4
	Consumert-SU21	PC9b:Fillers, putties,	Fillers and putty											
		plasters, modeling clay		1	А		A		1	35.72916667		1000	20	4
	:Consumeri-SU21	PC9b:Fillers, putties, plasters, modeling clay	Plasters and floor equalizers	1	Α		A		1	857.5		25000	20	2
	Consumert-SU21	PC9b:Fillers, putties,	Modelling clay											
		plasters, modeling clay		0.1	С	С			1	254.4	1		20	
		PC9c:Finger paints PC24: Lubricants,	Finger paints	0.5	С	С			1	254.4	1.35		20	
	Consumer-Soz r	greases, and release	Liquids											
	Çênsumert-SU21	products PC24: Lubricants, greases,	Pastes	0.5	A		A		1	857.5		5000	20	4
	000000000000000000000000000000000000000	and release products	doteo	0.2					1	857.5			20	
	Consumert-SU21	PC24: Lubricants, greases,		0.2	Ť –					001.0			20	
		and release products	Sprays	0.5	A		A	s	1	428.75		300	20	4
	:Consumeri-SU21	PC35:Washing and cleaning products (including												
		solvent based products)	Laundry and dish washing products	0.6	A		Α		1	857.5		50	20	
	Consumert-SU21	PC35:Washing and	Cleaners, liquids (all	0.0	i –				, '	507.0		30	20	
		cleaning products (including solvent based products)	purpose cleaners, sanitary		1									
			products, floor cleaners, glass cleaners, carpet		1									
	Canarana C 154	DC2E4Monhing c=1	cleaners, metal cleaners)	0.5	A		A		1	857.5		250	20	0.33
	Gonsumeri-SU21	PC35:Washing and cleaning products (including	Cleaners, trigger sprays (all											
		solvent based products)	purpose cleaners, sanitary products, glass cleaners)	0.2	A		A	s	1	857.5		35	20	
	Consumeri-SU21	PC38_n: Welding and soldering products, flux	NOTE, n_assessment not in											
		products	TRA	0.2	<u> </u>		A		1			12	20	

#### TRA+

IKAT																										
Generic Exposure	: Mapping Consumer U	vant Use Sentine III	Product sub Category	all		all		dermal		dermal		dermal	Table 2b: Chara	dermal o	oral		inhalation	osure estimate	inhalation		inhalation	inhalation		inhalation	inhalation	
Scenario Short Title	Area of Application / UD	a	Sertinets	Product ingredient (weight fraction) (9/9)	n)	Frequency (events per day): if < 1, only used for dhronic assessment	rd .	Skin surface contact area (cm2)		Use Diution Fador		Dermal Factor		Glove effency S	Amount Swallowed (g)	TRA - exposure	Amount Used per event (g)		Inhalation Fac total use spille i.e., amo	actor (fraction of illedieve porated, mount lost)	d Location (indoors, outdoors, garage)	Air Exchange Rate (1/hr)	-	Dilution Factor incorporating Air Exchange Rate applied to TRA for mg kg nhalation cate.	Room Volume (m3)	
Cleaning	Consument BU21 P C3:All produc	Air care ucts	Air care, instant action (aerosol sprays)	Value	Comments TRA default	Value 4	Comments TRA default	Value	Comments	Value	Comments	Value	Comments	v	alue C	omments	Value	Comments internet search indicates 12.2g spray upon motion lasts up to 30days; so 0.4g/day or 0.1g/event if 4/day	Value	Comments	indoor, typical	Value 0.6	Comments RIVM general fact sheet	0.9286 1	Value 20	Comments TRA defaul
Covers general exposures to consume arising from the use of household products so as washing and cleaning	sers produc		Air care, instant action	0.5	0.5 TRA default	4	TRA default										5	internet search for air freshener indicates 12.2g spray upon motion lasts up to 30days; so 0.4g/day or 0.1g/event if 4/day; value increased to account for	o v:		indoor, typical	0.6	RIVM general fact sheet	0.9286	20	TRA defaul
products, aerosols, coatings, de-icers, lubricants and air care products.			(aerosol sprays)- pasticidal-excipient only	0.5	0.5 TRA default	1	TRA default		TRA default	<u> </u>		0.16			Ш	Ш	0.48	other spray applications inernet search indicates 14.4g		$\perp$	indoor,	0,6	RIVM	0.2086	20	TRA defaul
PC3, PC4, PC8 (excipient only), PC9, PC24, PC35, PC38	Consume(I-6U21 PC3:A)	Air care	Air care, continuous action (solid and liquid) Air care, continuous	0.1	0.1 increased value from TRA default	om 1	TRA default	35.7	i.7 TRA default	₩	+	0.0032	<del>                                     </del>	-	$\dashv$	$\vdash$	0.48	inernet search indicates 14.4g plug-in lasts 30days, so 0.48o/day internet search for air freshener			typical indoor.	0.6	RIVM general fact sheet RIVM	0.2086	20	TRA defaul
<u> </u>	1000000	ucts	action (solid and liquid)- pesticidal-excipient only Washing car window	/ 0	TRA default 0.5 ACC cites an EU RA		estimated as	35.	3	$\perp$		<u> </u>	<u> </u> '	Ш	لــــا	ш	ь	indicates 14.4g plug-in lasts 30days, so 0.48g/day ACC cites an EU RA	<b>↓</b>	<u> </u>	typical	1	general fact sheet RIVM	0.9876		COAL NOO
	de-icing	ing products			.01	1	conservative frequency used in a	'		_	_!	i	'	$  \perp$		ı J	l	.5	l _	_	garage	1.5	general fact sheet	1	34	RIVM general fact sheet
	Certsurfert-Su21 PC4_n and de produc	_n: Anti-freeze i de-loing ucts	Pouring into radiator		estimated as 10 times concentration used in ACC windscreen scenario 0.1	on	conservative estimate assumes as daily use	428	based upon 1 hand			0.000333333					2000	estimated about half of a typical container		estimate 5% lost during pouring		1.5	RIVM general fact sheet	0.8848	34	RIVM general fact sheet
	descing	n:Anti-freeze and ing products	Lock de-icer	0.5	estimated based upon use as a common TRA default	1	conservative estimate assumes as daily use	214.4	est. fingers of one hand			0.0001					<i>-</i> -	est, amount of one spray into a lock; internet sear ch indicates lock delicers sold in about 20 g sizes; note windshield de-loer sold in larger sizes (11 oz) but would only be needed on a veihicle parked outdoors	9 9 17		garage	1.5	RIVM general fact sheet	0.8339	34	RIVM genes fact sheet
	product only for	n: Biocidal ucts (excipient use I for solvent ucts)	Laundry and dish washing products	0.05	RIVM	1	TRA default	857.5	TRA default	0.01	est. 100-fold din with water (AISE indicates 10 mg/cm3 product conc. in washwater)	t					15	5 from EFH dishwashing; laundry liquid 150 g in HERA - est. 90% down the drain, exposure to 15 g			indoor, typical	0.6	RIVM general fact sheet	0.8639	20	TRA defaul
	product only for	n: Biocidal ucts (excipient uses for solvent ucts)	Cleaners, liquids (all purpose cleaners, a sanitary products, foor cleaners, glass cleaners, carpet cleaners, metal cleaners)	0.05	RIVM	0.35	EFH 2009 mean use frequency, table 17-37 liquid all purpose cleaner	857.5 all	TRA default	1	(up to 1 in AISE)	0.00132	Previously used"1" as dermal transfer factor (up to I in AISE)				27	EFH 2000 mean liquid purpose cleaner			indoor, typical	0.6	RIVM general fact sheet	0.9072	20	TRA defaul
	product only for product	n: Biocidal ucts (excipient use) for solvent ucts)	Cleaners, trigger sprays a (all purpose cleaners, sanitary products, glass cleaners)	0.15	RIVM		EFH 2009 mean use frequency, table 17-37 liquid all purpose cleaner	at42	est. lower skin contact for spray than liquid, wiping with one hand 28			0.000222222					35	TRA default			indoor, typical	0.6	RIVM general fact sheet	0.9516	20	TRA defaul
	Pinners	a:Coatings and s, fillers putties, ers	Waterborne latex wall paint	0.015	RIVM paint fact sheet solvent percentage		RIVM paint fact sheet	428.75	TRA default			0.029333333					2760	est. 400 sq ft per gallon, for walls of 20 m3 room e.g. 304 sq ft or 0.76 gallons = 2760 g; consisten with EPA 2009 EFH 75th percentile	en		indoor, typical	0.6	RIVM general fact sheet	0.5552	20	TRA defaul
	Construent-St/21 P Claric paints, thinner	a Coatings and to s, filters putties, or ers	Solvent rich, high solid, water borne paint	0.275	RIVM paint fact sheet	0.016	RIVM paint fact sheet	428.75	TRA default	L		0.0016		$\square$		$\square$	74	EFH 2009 75th percentile oil paint			indoor, typical	0.6	RIVM general fact sheet	0.5552	20	TRA defaut
<u> </u>	Consume)1-6021 PCtarC	Coatings and	Tier 2: ConsExpo extimates Aerosol spray can	0.5	TRA default	0.005	RIVM 2 uses per year		+	$\vdash$	++	<del></del>	<del> </del> '	+	$\dashv$	$\overline{}$	215	EFH 2009 75th percentile spray paint	17	$\vdash$	garage	1.5	RIVM general fact	0.7887	34	RIVM gener fact sheet
	Consumer SU21 PC9a C paints, I		Removers (paint-, glue-, wall paper-, sealant- remover)	+	RIVM paint fact sheet	0.008219178	COA CCU 76%	7.	TRA default	$\vdash$	+-+	0.0008	+	+	$\dashv$	$\overline{}$	491	EFH 2009 75th percentile	+-	$\vdash$	indoor, typical	0.6	general fact sheet RIVM general fact sheet	0.5823	20	TRA defaul
	Construct Stratt P Cab: F	b:Fillers, putties,	remover) Filters and putty	0.02	0.5 Est. Product	0.032876712	per centile table 17- 4 paint removers infrequent use, est 12/yr	9 857.5 st	7.5 TRA default	₩	$\perp$	0.04	<u> </u> '	+	$\square$	igspace	85	Est 3 oz consumer use (internet	net	₩	indoor,	0.6	RIVM	0.3789	20	TRA defai
	plaster clay	ters, modeling			function requires product to remain, expect <solvent amount in water borne paint</solvent 			35.7291667	67								L	search indicates tubes sold in 1 and 3 oz sizes).			typical		general fact sheet			
		Fillers, putties, in Fillers, modeling day in	Plasters and floor equalizers	0.02	Product function requires product to semain, expect <solvent amount="" in<br="">water borne paint Est solvent</solvent>	0.032876712 io	infrequent use, est 12lyr TRA default	st 857.5	TRA default			0.02		Ш	لبًا		13800	internet search indicates about 7.5 L (13.8 kg) ready to roll plaster to cover 31 m2 auriace area (est. walls of 20 m3 room)	10		indoor, typical	0.6	RIVM general fact sheet	0.5823	20	TRA detau
	plaster clay	b:Fillers, puttles, liters, modeling	Modelling clay	0.01	concentration			254.4	1.4			İ	previously used "0.05" as dermal transfer factor; as clays are solid, based upon EPA 600/R-07/040F transfer factor for treated surfaces		,	THA Detaus	l _				_ '					
	Corpumor SU21 PC24:	:Finger paints	Finger paints Liquids	0.5	TRA default increased above	1	TRA default EPA EFAST model	254.4 del	TRA default i.4 EPA EFAST 7.8	$\blacksquare$		3.33333E-05	District me	$\Box$	1.35	TRA default	2200	Est changing 2 quarts (2200 g)	g) 0.01	est. loss of	f garage	1.5	RIVM	0.8848	34	RIVM geni
	grease release	ses, and ise products	Liquos		increased above TRA default	0.010958904	EPA EFAST model motor oil	46	EPA EFAST 7:8 cm2/kg, adjusted to 60 kg			3.30.00				i	l			est loss of <1% total product used via spillage or evaporation		1.9	RIVM general fact sheet			RIVM gene fact shee
	greases	E Lubricants, I ses, and release acts	Pastes		TRA default	0.02730726	EFH 2009 Table 17- 4	46	TRA default								34	EFH 2009 75th percentile use 1.2 oz/use								
	Contract SU21 PC24: L greases product	E Lubricants, ses, and release ucts	~	0.5	TRA default	0.016438356	EFH 2009 spray lubricants for cars, 75th percentile	y 428.75 %.	TRA default	Ī		6.66667E-05	Γ '	ΓΙ	.	<u> </u>	73	EFH 2009 75th percentile			indoor, typical	0.6	RIVM general fact sheet	0.9516	20	TRA defai
	clear (incl	35.Washing and saring products including solvent ased products)	Sprays  Laundry and dish	0.05	RIVM	1	TRA default	857.5	TRA default	0.01	est. 100-fold din with water (AISE indicates 10 mg/cm3 product conc. in	0.002				$\Box$	15	5 from EFH dishwashing; laundry liquid 150 g in HERA - est. 90% down the drain, exposure to 15 g			indoor, typical	0.6	RIVM general fact sheet	0.8639	20	TRA defai
	cleaning	5.Washing and ing products using solvent d products)	washing products  Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal		RIVM	0.35	EFH 2009 mean use frequency, table 17-37 liquid all purpose deaner	857.5	TRA default		(up to 1 in AISE)	0.00132	perviously used "1" as demail transfer factor (up to 1 in AISE)				27	EFH 2009 mean liquid purpose cleaner			indoor, typical	0.6	RIVM general fact sheet	0.9072	20	TRA defai
	clear (inclu base	35/Washing and sening products including solvent ased products)	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	0.15 ys	RIVM	0.35	EFH 2009 mean use frequency, table 17-37 liquid all purpose cleaner	428 all	est. lower skin contact for spray than liquid, wiping with one hand	i i		0.000222222				$\sqcap$	35	TRA default			indoor, typical	0.6	RIVM general fact sheet	0.9516	20	TRA defa
	Contsument-SU21 PC38_r solderin product	3_n: Welding and iring products, flux acts	NOTE, n_assessment not	0.2	est. weight fraction	1	daily use assumed		contains acids, sold with brushes or applicators so no dermal exposure						$\Box$	$\Box$	12	est. 3 seals at 4 give al for a small room			indoor, typical	0.6	RIVM general fact sheet	0.7520	20	TRA defau

## 1.3 Use as a Fuel – Consumer TRA

Table	1: Mapping Cor	nsumer Uses in the Su	pply Chain			Table	2a: (	Character	ising the Risk - ba	sed on defau	Its (ECETOC	TRA Consun	ners)	
				ali	all				all	d	0	i	i	i
Generic Exposure Scenario		Relevant Use Sentinel Product	Product sub Category Sentinels	Product ingredient (g/g)	adult / child				frequency (events per day)	Skin surface contact area (cm2)	Amount Swallowed (g)	Amount Used per event (g)	room volume (m3)	exposure time (hr)
Short Title	Area of Application / UD							Product is spray? (S)		, ,				
					d	o i								
Fuels	Çênsumert-SU21	PC13:Fuels	Liquid - subcategories added: Automotive Refuelling	0.5	i A	A			1	857.50		5000	20	4
PC13	Consumert-SU21		Liquid - subcategories added: Scooter Refuelling	0.5	A	А			1	857.50		5000	20	4
	Consumert-SU21	PC13:Fuels	Liquid - subcategories added: Garden Equipment - Use	0.5	5	A			1	857.5		5000	20	4.000
	Censument-SU21	PC13:Fuels	Liquid (subcategories added): Garden Equipment - Refueling	0.5	i A	А			1	857.5		5000	20	4
		PC13:Fuels	Liquid (subcategories added): Home space heater fuel	0.5	i A	А			1	857.5		5000	20	4.00
	:Consumeri-SU21	PC13:Fuels	Liquid - subcategories added: Lamp oil	0.5	A	А			1	857.5		5000	20	4

#### TRA+

Table 1: I	Mapping Cons	amer Uses in the S	upply Chain										Table 2b: Char	acterising	the Risk - after refi	nement of ex	posure estimate										
				all		all		dermal		dermal		dennal		dermal	oral	inhalation		inhalation		inhalation	inhalation	- 1	rha lation	inhalation		halation	
Generic Exposure		Relevant Use Sertinal	Product sub Category Sentinels											TIER1+	ECETOC TRA - expos	ure modifiers											
ShortTile	Area of Application / UD			Product ingredient (weight fraction) (p/g)	,	Frequency (events per day): if < 1, only used for chronic assessment		Skin surface contact area (cm2)		Use Disting Factor		Dermal Factor		Glave effency	Amount Swallowed (S)	Amount Used per event (g)		total use spill	ctor fraction of ed evaporated, ount lost)	Location (indoors, outdoors, garage)	Air Eachange Rate (1 ftr)	6	Nurson Factor receporating Air exchange Rate applied of TRA for mg/kg shalation calc.	Room Volume (m3)		Exposure time (hours)	
ads	Godsumbrid Coa	PC13Fuels	Liquid - subcategories added: Automotive Refuelling	yalue	Promote above TRA default	0.143	est as 1 per week	Value 210	est as paim of one hand	Value	Conuments	0.000010	Comments		Value Comments	7750 3750	Comments eat. fael tank size 50 L converte using gasceine density of 750 kg Im 3	0.002	expection/% loss during seturing due to evaporation /spill	autdaor	0.6	est. conservative value for outdoor	0.985	100	Stoffe remanage ervolume used for outdoors	0.05	Smins, 93 percentil Vainbrisio al. 1990
0.13	Consumer(St(2)	PC13Fuels	Liquid - subcategories added: Scooter Refuelling		increased above TRA default	0.143	est as Tperweek	210	est as paim of one hand			0.000007				3750	est. fael tank size SL converted using gasoline density of 750 kg lm3	0.02	expect low % loss during setueling but more than for automotive	outdoor	a.s	est. conservative value for outdoor	0.990	100	Stoffenmanag ervolume used for outdoors	0.03:	2mins, Est shorter th vehicle
	Consume(Sti2)	PC13:Fuels	Liquid - subcategories ad ded: Garden Equipment - Use	1	Increased above TRA default	0.00	est as Tpertwo weeks									70	1 L: Conv flors L to gbased upon density for mogas = 750 kg/m 3.	0.02	expection/% loss during equipment use	outdoor	0.6	conservative value for outdoor	0.582	100	Stoffenmanag ervolume used for outdoors	2.000	Est 2 ho per da
	Chos Bran (SUZ)	PC13:Fuels	Liquid (subcategories ad del) Garden Equipment - Refueling		increased above TRA default	0.07	est as 1 per teo weeks	8	Est. half of each hand			0.000005				750	11: Corw form 1. In g based upon density for mogas = 750 kg irs1.		expect low % loss but may be more from pouring than using filling station equipment	garage	1.5	RVM general fact sheet	0.978	34	fact sheet	.03	Dr. 2m)
		PC13 Fuels	Liquid (subcategories added): Home space heater fuel		increased above TRA default	4	est as daily		est. as palm of one hand			0.000006				3000	4 L: Conv from L to ghased upon density for magas = 750 kg/m3.		expect low amount (5 m1 max) spilled during pouring in residence	Indoor, typical	a.s	RAVM general fact sheet	0.991	20	TRA default ()	103	Est. 2mi
	Consider(SM2)	PC13:Faels	Uquid - subcategories added: Lamp oil	1	TRA default	0.14	est as Tperweek	210	est as paim of one hand			0.000003				100	0.13L: Convitrom Lito g based upon density for mogas = 750 kg/m3.	0.05	expect low loss but % increased because lower use	indoor, typical	0.6	RIVM general fact: sheet	0.996	20	TRA default	0.01	Eat 0.75 r

1.4 Other uses – Consumer

Table not applicable

## Appendix 2a Exposure estimation – worker

## 1.1 Manufacture of Substance – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Lid	quids - Chemica	al Safety Asses	sment - Evaluat	ion of Safe Use	
	in the County			Use Descriptor		Inhalatory exposure	,			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Manufacture of substance	industriál - SU8/9/3	General process exposures (no sampling)	CS15	PROC1 Closed process (no sampling)	0.03		0.03	0.34			0.34		
	fridüştriği -: SU8/9/3	General process exposures and sample collection	CS15	PROC2 Closed continuous process (with sampling)	147.24		147.24	1.37			1.37		
	tndustriat - SU8/9/3	General process exposures	CS15	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34			0.34		
	tndustriat - SU8/9/3	General exposures open batch process	CS16	PROC4 batch process with exposure	294.48		294.48	6.86			6.86		
	jadustrjat - SU8/9/3	Sample collection	CS2	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	Industriat - SU8/9/3	Laboratory activities	CS36	PROC15 Use in laboratory	147.24		147.24	0.34			0.34		
	Iņdustrial SU8/9/3	Bulk transfers (no lev)	CS14, CS108	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	Industrial - SU8/973	Bulk transfers (with lev)	CS14, CS107	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	industrial SU8/9/3	Clean down and Maintenance	CS39	PROC8a Non- dedicated discharging to/from vessels	736.20		736.20	13.71			13.71		
	Industriat -SU3/ SU10	Storage	CS67	PROC1 Closed process (no sampling)	0.03		0.03	0.34			0.34		
	industriál - SU3/ SU10	Storage	CS67	PROC2 Closed continuous process (with sampling)	147.24		147.24	1.37			1.37		

## 1.2 Distribution of Substance – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Liq	juids - Chemica	al Safety Asses:	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposure	9			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Distribution of	Industrial - SU3	General process	CS15	PROC1 Closed	0.03		0.03	0.34			0.34		
substance		exposures - closed process (e.g. In- line additive dosing equipment, in-line filter cleaning)		process (no sampling)									
	Industrial - 903	General process exposures (occasional controlled exposure)	CS15	PROC2 Closed continuous process (with sampling)	147.24		147.24	1.37			1.37		
	Industrial - SU3	General process exposures - closed batch process	CS15	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34			0.34		
	Industrial -SU3	General exposures open batch process	CS16	PROC4 batch process with exposure	294.48		294.48	6.86			6.86		
	Industrial :- SU3	Sample collection	CS2	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34			0.34		
	industrial - SU3	Laboratory activities	CS36	PROC15 Use in laboratory	147.24		147.24	0.34			0.34		
Combine in narrative as Bulk Transfer CS14 unless differentiation required in practice	jnqustrját – SU3	Bulk closed loading and unloading NEW CS (e.g. road/rail car bottom loading/unloading; marine vessel/barge loading/unloading;)	CS14, CS107 Bulk transfers (closed systems)	PROC8b Dedicated Discharging to/from vessels	441.72		441.72	6.86			6.86		
LEV option		Bulk open loading NEW CS (e.g. road/rail car top loading, may involve LEV)	CS14, CS108 Bulk transfers (open systems)	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	jadustriat - SU3	package filling	CS6	PROC9 Transfer of substance/mixture into small containers	588.96		588.96	6.86			6.86		
	jndustriat - SU3	Clean down and Maintenance	CS39	PROC8a Non- dedicated discharging to/from vessels	736.20		736.20	13.71			13.71		
		Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.03		0.03	0.34			0.34		
	Industriat - SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37			1.37		

1.3 Formulation & (Re)packing of Substances and Mixtures – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	isk - High VP Lic	quids - Chemica	al Safety Asses	sment - Evaluat	ion of Safe Use	
	in the Cumulu			Use Descriptor		Inhalatory exposure	1			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Formulation & (re)packing of substances and mixtures	industriat Su3/Su10	General process exposures (no sampling) (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	PROC1 Closed process (no sampling)	0.03		0.03	0.34			0.34		
	industriat - SU3/ SU10	General process exposures and sample collection	CS15	PROC2 Closed continuous process (with sampling)	147.24		147.24	1.37			1.37		
	industriat - SU3/ SU10	General process exposures (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34			0.34		
	industrial -:SU3/ SU10	General exposures open batch process	CS16	PROC4 batch process with exposure	294.48		294.48	6.86			6.86		
Elevated temperature therefore applied value for medium volatility	industriat -SU3/ SU10	Batch processes at elevated temperatures (e.g. solvents resin manufacture, grease manufacture)	CS136	PROC3 Closed batch process (with sampling)	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of LEL has been applied for Tier 1 predicted exposure estimate due to elevated temperature
	jndustrját – SU3/ SU10	Sample collection	CS2	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34			0.34		
	Industrial - SU3/ SU3	Laboratory activities	CS36	PROC15 Use in laboratory	147.24		147.24	0.34			0.34		
	Industrial - SU3/ SU10	Bulk transfers	CS14	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	industrial : SU3/ SU10	Mixing operations (open systems)	CS30	PROC5 Mixing or blending	736.20		736.20	13.71			13.71		
	industriál - SU3/ SU16	Transfer from/pouring from containers , Manual	CS34 + CS22	PROC8a Non- dedicated discharging to/from vessels	736.20		736.20	13.71			13.71		
	industrial - SU3/ SU10	Drum/Batch transfers	CS8	PROC8b Dedicated discharging to/from vessels	441.72		441.72	6.86			6.86		
	industrial - SU3/ SU10	Tabletting, compression, extrusion or pelletisation	CS100	PROC14 Production of preparation by tabletting, compression, extrusion, pelletisation	736.20		736.20	3.43			3.43		
	industrial - SU3/ SU16	Drum and small package filling	CS6	PROC9 Transfer of substance/mixture into small containers	588.96		588.96	6.86			6.86		
	industrial - SU3/ SU10	Clean down and Mainten ance	CS39	PROC8a Non- dedicated discharging to/from vessels	736.20		736.20	13.71			13.71		
	Industriat - SU3/ SU10	Storage	CS67	PROC1 Closed process (no sampling)	0.03		0.03	0.34			0.34		
	Industrial - SU3/ SU10	Storage	CS67	PROC2 Closed continuous process (with sampling)	147.24		147.24	1.37			1.37		

## 1.4 Uses in Coatings – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Lic	juids - Chemica	al Safety Asses	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposure	e			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use in Coatings (Industrial Application)	s Industrial -SU3	General exposures (closed systems) [CS15].	[CS15]	PROC1 - Use in closed process, no likelihood of exposure	0.03		0.03	0.34			0.34		
	Industrial -SU3	General exposures (closed systems) [CS15].	[CS15] [CS56] [CS38]	PROC2 - Use in closed, continuous process with occasional controlled	147.24		147.24	1.37			1.37		
	industrial - SU3.	Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94].	[CS94]	PROC2 - Use in closed, continuous process with occasional controlled exposure	6625.00	Vent (0.7)	1987.50	1.37			1.37		15% of LEL has been applied for Tier 1 predicted exposure estimate due to elevated temperature
	Industriat - SU3	Mixing operations (closed systems) [CS29].	[CS29] [CS15]	PROC3 - Use in closed batch process (synthesis or formulation)	294.48		294.48	0.34			0.34		
	Industrial - SU3	Film formation - air drying [CS95].	[CS95]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	294.48		294.48	6.86			6.86		
	Industrial - SU3	Preparation of material for application [CS96].	[CS96] [CS30]	PROC5 -Mixing or blending in batch processes (multistage and/or significant contact)	736.20		736.20	13.71			13.71		
	Industrial - SU3	Spraying (automatic/robotic) [CS97].	[CS97]	PROC7 -Industrial spraying	1472.39		1472.39	42.86			42.86		
	Industrial - SU3-	Manual [CS34].	[CS34] [CS10]	PROC7 -Industrial spraying	1472.39		1472.39	42.86			42.86		
Duration Option	industrial - SU3.	Material transfers [CS3].	[CS3]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	736.20		736.20	13.71			13.71		
	Indústriál - SU3.	Material transfers [CS3].	[CS3]	PROC8b -Transfer of chemicals from/lo vessels/ large containers at dedicated facilities	441.72		441.72	6.86			6.86		
	industrial - SU3	Roller, spreader, flow application [CS98].	[CS98]	PROC10 - Roller application or brushing	736.20		736.20	27.43			27.43		
	industrial - SU3	Dipping, immersion and pouring [CS4].	[CS4]	PROC13 - Treatment of articles by dipping and pouring	736.20		736.20	13.71			13.71		
	Industrial - SU3	Laboratory activities [CS36].	[CS36]	PROC15 - Use of laboratory reagents in small scale laboratories	147.24		147.24	0.34			0.34		
	indústriál - SU3	Material transfers [CS3].	[CS3] [CS8] [CS22]	PROC9 -Transfer of chemicals into small containers (dedicated filling line)	588.96		588.96	6.86			6.86		
	Industrial - SU3	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100].	[CS100]	PROC14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation	736.20		736.20	3.43			3.43		

1.5 Use in Cleaning Agents – Industrial

	Table	11111g Age	s in the Suppl	y Chain		Table 2: Chara	cterising the Ri	sk - High VP Lic	uids - Chemica	al Safety Asses	sment - Evaluat	tion of Safe Use	
				Use Descriptor		Inhalatory exposure				Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Uses in Cleaning	Industriaj - SU3	Bulk transfers [CS14].	[CS14]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	736.20		736.20	13.71			13.71		
	Jndústrial : SU3	Automated process with (semi) closed systems. [CS93].	[C\$93]	PROC2 - Use in closed, continuous process with occasional controlled exposure	147.24		147.24	1.37			1.37		
	industrial - SU3	Automated process with (semi) closed systems. [CS93].	[CS93]	PROC3 - Use in closed batch process (synthesis or formulation)	294.48		294.48	0.34			0.34		
	Industrial - SU3	Application of cleaning products in closed systems [CS101].	[CS101]	PROC2 - Use in closed, continuous process with occasional controlled exposure	147.24		147.24	1.37			1.37		
	Jridustřial : SU3	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	441.72		441.72	6.86			6.86		
	Industrial - SU3	Use in contained batch processes [CS37].	[CS37]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	294.48		294.48	6.86			6.86		
	Industrial : SU3	Degreasing small objects in cleaning station [CS41].	[CS41]	PROC13 - Treatment of articles by dipping and pouring	736.20		736.20	13.71			13.71		
	Industrial - SU3	Cleaning with low- pressure washers [CS42].	[CS42]	PROC10 - Roller application or brushing	736.20		736.20	27.43			27.43		
	Industrial - SU3	Cleaning with high pressure washers [CS44].	[CS44]	PROC7 -Industrial spraying	1472.39		1472.39	42.86			42.86		
	tridustrial - SU3	Manual [CS34].	[CS34]	PROC10 - Roller application or brushing	736.20		736.20	27.43			27.43		

1.6 Use in Cleaning Agents – Professional

1.6 Use	in Clear	ning Agent	ts - Pr	OTESSION	aı	Table 2: Char	acterising the D	sk - High VP Lic	uids - Chamis	al Safety Accor	sment - Evaluat	ion of Safe Hea	
	Tab	ie i. mapping oses	in the Suppl	Use Descriptor		Inhalatory exposur	e			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
The professional use as a componer of cleaning products.	Professional- nt SU22	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	PROC8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	736.20		736.20	6.86			6.86		
	Professional - SU22	Automated process with (semi) closed systems. [CS93].	[CS93]	PROC2 - Use in closed, continuous process with occasional controlled exposure	147.24		147.24	1.37			1.37		
	Professiónál - SU22	Automated process with (semi) closed systems. [CS93].	[CS93]	PROC3 - Use in closed batch process (synthesis or formulation)	294.48		294.48	0.34			0.34		
	Professional- SU22	Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	[CS76]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	736.20		736.20	6.86			6.86		
	Professional- SU22	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities.	1472.39		1472.39	13.71			13.71		
	Professional SU22	Manual [CS34].	[CS34]	PROC13 - Treatment of articles by dipping and pouring	736.20		736.20	13.71			13.71		
	Professional- SU22	Cleaning with low- pressure washers [CS42].	[CS42]	PROC10 - Roller application or brushing	1472.39		1472.39	27.43			27.43		
	Professional SU22	Cleaning with high pressure washers [CS44].	[CS44]	PROC11- Non industrial spraying	2944.79	Duration (0.4)	1766.87	107.14			107.14		
	Professional - SU22	Cleaning with high pressure washers [CS44].	[CS44]	PROC11- Non industrial spraying	2944.79	Duration (0.4)	1766.87	107.14			107.14		
	Protessional - SU22	Manual [CS34].	[CS34]	PROC10 - Roller application or brushing	1472.39		1472.39	27.43			27.43		
	Professional - SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	PROC10 - Roller application or brushing	1472.39		1472.39	27.43			27.43		
	Professional - SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	PROC10 - Roller application or brushing	1472.39		1472.39	27.43			27.43		
	Professional- SU22	Application of cleaning products in closed systems [CS101].	[CS101]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	736.20		736.20	6.86			6.86		
	Professional;- SU22	Cleaning of medical devices [CS74].	[CS74]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	736.20		736.20	6.86			6.86		

1.7 Use as a Blowing Agent – Industrial

	oing Uses										sk - High VP Lic					
				Typical Mapped Operating Conditions		oped RMMs	Use Descriptor		Inhalatory exposure				Dermal exposure		I =	
Use	er Group	Contributing Scenarios	CS Ref	Conditions	Text	LEV	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3 modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comme
Indust	triál - SU 3	Delivery of solvent to plant storage	CS14	Closed system, ambient temp.	Dedicated line couplings.	NO LEV	PROC8b	441.72		441.72	6.86		1	6.86		
				Filling point outdoors. Exposure potential limited to	Operator in attendance.											
				coupling/uncouplin g activities (<15 min/d)												
Indust	triál - SU 3	Injection and mixing into molten polymer mass in extruder	CS29	Closed system, high temp., high pressure	High integrity packings etc	NO LEV	PROC1	0.03		0.03	0.34			0.34		
Indust	triál - SU 3	Foam production through polymer extrusion	CS122	Indoor, ambient temp.	Extrusion area under LEV (slot design)	With LEV	PROC12	294.48		294.48	0.34			0.34		
Indust	mal-SU 1	Foam panel finishing (shaving/cutting)	CS134	Enclosed area (no operator) under LEV	Enclosure area under LEV	With LEV	PROC12	294.48		294.48	0.34			0.34		
Indust	mál-SU3	Foam panel shavings recycling	CS123	Indoor, ambient temp.	Enclosure area under LEV	With LEV	PROC12	294.48		294.48	0.34			0.34		
]ndus)	mişli SU 3	Foam panel packing	CS124	Indoor, ambient temp.	General ventilation	NO LEV	PROC12	294.48		294.48	0.34			0.34		
frjdust	trial,-SU 3	Foam panel curing	CS67	Indoor, ambient temp. Warehouse	General ventilation	NO LEV	PROC12	294.48		294.48	0.34			0.34		
				operations with forklift truck. No direct contact with product												
Indust	rial - SU 3	Mixing with polystyrene beads	CS29	Closed system, Operating Temp.	Closed system; remotely controlled /	With LEV	PROC3	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of L been app
		in reactor		120-130 dC (elevated temperature); 4.5% agent in mix	controlled / automatic operation; forced area ventilation; air monitoring to detect leakages											Tier 1 pi expo estimate elevi tempe
Indusi	mál - SÚ 3	Transfer to and holding in waiting tank	CS66	Closed system, elevated temperature; 4.5% agent in mix	Closed system; remotely controlled / automatic	NO LEV	PROC3	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of libeen ap Tier 1 p
					operation; forced area ventilation; air monitoring to detect leakages											estimate elev tempe
Indust	mal-SU3	Centrifuging of slurry of beads and process water	CS127	Closed system, elevated temperature; 4.5% agent in mix	Closed system; remotely controlled / automatic	NO LEV	PROC3	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of l been ap Tier 1 p expo
					operation; forced area ventilation; air monitoring to detect leakages											estimati elev tempe
Indust	mal-SU 1	Drying of polystyrene powder/granules	CS12	Indoor, ambient temp. Dedicated equipment.	Vented silo	NO LEV	PROC12	294.48		294.48	0.34			0.34		
Indust	triál - SU 3	Loading/packaging for transport to customers	CS128	Indoor, ambient temp. Dedicated equipment.	Forced ventilation	NO LEV	PROC8b	441.72		441.72	6.86			6.86		
Indust	triál - SU 3	Steam-heating and expansion of expandable polystyrene granulate	CS129	4% blowing agent in granulate; Elevated temperature	Ventilation, waste air treatment	NO LEV	PROC12	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of been ap Tier 1 p expo estimat
Indust	rrjal - SU 3	Storage and ageing of partially expanded polystyrene	CS129	Open silo's; 3% blowing agent in granulate	Vented são	NO LEV	PROC12	294.48		294.48	0.34			0.34		elev tempe
Indust	triál - SU 3	granulate  Moulding and	CS130	Use of steam in	Local exhaust	With LEV	PROC12	6625.00	Vent (0.7)	1987.50	0.34			0.34		15% of I
		block forming with expanded polystyrene granulate		partially closed moulds; elevated temperature; 2% blowing agent in granulate	ventilation (80%)											been ap Tier 1 p expo estimate elev tempe
Indust	inal SU3	Storage and outling of expanded polystyrene	CS131	Vented storage; cutting by heated wire; 1% blowing agent in granulate	Forced ventilation	With LEV	PROC12	294.48		294.48	0.34			0.34		
Indust	iriál - (SU, 3	articles Injection and mixing into pre- reaction component in	CS29		Closed system	With LEV	PROC3	294.48		294.48	0.34			0.34		
fridust	idalSU-3	component in blending tank Drum filling blended mix	CS6, CS45	Indoor, ambient temp.	Filling station under LEV; remotely operated	With LEV	PROC9	588.96		588.96	6.86			6.86		
Indust	triál - SU 3	Foam production through mixing of reactive	CS132	Indoor, ambient temp. Automated machinery.	Foaming area under LEV (slot	With LEV	PROC12	294.48		294.48	0.34			0.34		
		reactive components		machinery.	design and/or enclosure)											
Indust	mai-SU3	compression to expel residual	CS133	Indoor, ambient temp. Automated machinery.	LEV/enclosure	With LEV	PROC12	294.48		294.48	0.34			0.34		
Indust	tgal,-SJU 3	blowing agent Foam article	CS131	Enclosed area (no	LEV/enclosure	With LEV	PROC12	294.48		294.48	0.34			0.34		
		automated cutting		operator) under LEV; only traces of blowing agent left												

1.8 Use in Agrochemicals – Professional

	Table	1: Mapping Use	s in the Supply	/ Chain		Table 2: Chara	cterising the Ri	sk - High VP Lic	uids - Chemica	I Safety Asses	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposure				Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use in Agrochemicals	Postejsenonen Suzzi	transfer from/pouring from containers	CS22	PROC8b Discharging to/from vessels	736.20		736.20	6.86	n/a		6.86	n/a	
10 and 50 checked and GESs revised	8/8/36/3/3/-	mixing in containers	CS23	PROC4 Closed batch process (with sampling)	736.20		736.20	6.86	n/a		6.86	n/a	
	300	spraying and fogging by manual application.	CS24	PROC11 - Non industrial spraying	2944.79	Duration (0.4)	1766.87	107.14	n/a		107.14	n/a	
	2053 8308290397	spraying and fogging by machine application	CS25	PROC11 - Non industrial spraying	2944.79	Duration (0.4)	1766.87	107.14	n/a		107.14	n/a	
	Professional Suzz	small ad hoc application via dipping, trigger sprays, etc	CS27	PROC13 - Treatment of articles by dipping and pouring	736.20		736.20	13.71	n/a		13.71	n/a	
	Professional 9022	cleandown and maintenance of equipment	CS26	PROC8a Discharging to/from vessels	1472.39		1472.39	13.71	n/a		13.71	n/a	
	264	disposal of wastes		PROC8a Discharging to/from vessels	1472.39		1472.39	13.71	n/a		13.71	n/a	
	363	Storage	CS67	PROC1	0.29		0.29	0.34	n/a		0.34	n/a	
	Sparseigus /	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37	n/a		1.37	n/a	

#### 1.9 Use as a Fuel – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Lic	juids - Chemica	I Safety Asses	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposure				Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use as a fuel	industriář -SU3	Bulk transfers (barge, rail and road)	CS14	PROC8b Dedicated Discharging to/from vessels	441.72		441.72	6.86	n/a		6.86	n/a	
	Industrial :SU3	Transfers from drums and containers	CS8	PROC8b Dedicated Discharging to/from vessels	441.72		441.72	6.86	n/a		6.86	n/a	
	Industrial -SI/3	General use exposures as a fuel	CS15	PROC1 Use as a fuel	0.03		0.03	0.34	n/a		0.34	n/a	
	lndustrial :SU3	General use exposures as a fuel	CS15	PROC2 Use as a fuel	147.24		147.24	1.37	n/a		1.37	n/a	
	jndustriát -SU3	Use a fuel	CS15 CS107	PROC16 - use as a fuel	73.62		73.62	0.34	n/a		0.34	n/a	
	Industriat -SU3	Use a fuel additive diluent	CS15 CS107	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34	n/a		0.34	n/a	
	Industrial SU3	Vehicle/boiler maintenance	CS39 (changed from CS5)	PROC8a Non- dedicated Discharging to/from vessels	736.20		736.20	13.71	n/a		13.71	n/a	
	tridustriát -SU3	Cleaning fuel storage tanks	CS103	PROC8a Discharging to/from vessels	736.20		736.20	13.71	n/a		13.71	n/a	
	Jádústrját -SU3	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.03		0.03	0.34	n/a		0.34	n/a	
	Industriat -SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37	n/a		1.37	n/a	

#### 1.10 Use as a Fuel – Professional

	Table 1: Mapping Uses	i				Table 2: Charac	cterising the Ri	sk - High VP Lid	juids - Chemica	I Safety Asses	sment - Evaluat	ion of Safe Use	
	· · · · · · · · · · · · · · · · · · ·			Use Descriptor		Inhalatory exposure				Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use as a fuel	Proteststone/	Bulk transfers (e.g. heating oil and diesel deliveries)	CS14	PROC8b Dedicated Discharging to/from vessels	736.20		736.20	6.86	n/a		6.86	n/a	
	Protessional Sysz	Transfers from drums and containers	CS8	PROC8b Dedicated Discharging to/from vessels	736.20		736.20	6.86	n/a		6.86	n/a	
	8083 8083	Refuelling vehicles, light aircraft or marine	CS-I Refuelling - Concawe	PROC8b Dedicated Discharging to/from vessels	736.20		736.20	6.86	n/a		6.86	n/a	
	9032	General use exposures as a fuel	CS15	PROC1 Use as a fuel	0.29		0.29	0.34	n/a		0.34	n/a	
	8057 8057	General use exposures as a fuel	CS15	PROC2 Use as a fuel	147.24		147.24	1.37	n/a		1.37	n/a	
	2053 2008	Use a fuel additive diluent	GES16,- CS15 CS107	PROC3 Closed batch process (with sampling)	294.48		294.48	0.34	n/a		0.34	n/a	
	3633	Use a fuel	GES16, CS15 CS107	PROC16 - use as a fuel	147.24		147.24	0.34	n/a		0.34	n/a	
	Sector Se	Equipment maintenance e.g. Vehicle, boiler, pump maintenance, pump calibration	CS39	PROC8a Discharging to/from vessels	1472.39		1472.39	13.71	n/a		13.71	n/a	
	Profesional	Vessel / container cleaning	CS103	PROC8a Discharging to/from vessels	1472.39		1472.39	13.71	n/a		13.71	n/a	
	2053 808629091	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.29		0.29	0.34	n/a		0.34	n/a	

## 1.11 Use as Functional Fluids – Industrial

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Lic	uids - Chemica	I Safety Asses	sment - Evaluat	ion of Safe Use	
	in the County			Use Descriptor		Inhalatory exposure	9			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Functional fluids	Industrial :-SU10	Bulk transfers	CS14, CS107	PROC1 Closed	0.03		0.03	0.34	n/a		0.34	n/a	
runctional nuius	industrial -op io	to/from storage	C314, C3107	continuous process (sometimes with sampling)			0.03	0.34	IV d		0.34	IIra	
	Industrial :SU10	Bulk transfers to/from storage	CS14, CS107	PROC2	147.24		147.24	1.37	n/a		1.37	n/a	
10 and 50 checked and GESs revised	Industriat -SU10	Transfers from drums to filling machinery	CS8	PROC8b Discharging to/from vessels	441.72		441.72	6.86	n/a		6.86	n/a	
	Industrial -SU10	filling articles from predominantly enclosed machines	CS53 delete, CS84, CS107	PROC9 Transfer of chemicals into small containers	588.96		588.96	6.86	n/a		6.86	n/a	
	Industriat -SU10	manual filling of machines	CS45	PROC8a Discharging to/from vessels (non-dedicated)	736.20		736.20	13.71	n/a		13.71	n/a	
	Industrial -SU10	operation of closed equipment containing functional fluids	CS15	PROC2	147.24		147.24	1.37	n/a		1.37	n/a	
	Industriál -SU10	operation of open equipment containing functional fluids at elevated temperatures	CS16	PROC4 Use in batch and other process	6625.00	Vent (0.7)	1987.50	6.86	n/a		6.86	n/a	15% of LEL has been applied for Tier 1 predicted exposure estimate due to elevated temperature
	industrial :SU10	Re-work on off specification articles	CS19	PROC9 Transfer of chemicals into small containers	588.96		588.96	6.86	n/a		6.86	n/a	
	tndustriat -SU40	maintenance of equipment	CS5	PROC8a Discharging to/from vessels (non-dedicated)	736.20		736.20	13.71	n/a		13.71	n/a	
	Industrial -SU3		CS67	PROC1 Closed continuous process (sometimes with sampling)	0.03		0.03	0.34	n/a		0.34	n/a	
	industrial :SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37	n/a		1.37	n/a	

#### 1.12 Use as Functional Fluids – Professional

	Table 1: Mapping Uses					Table 2: Chara	cterising the Ri	sk - High VP Lie	quids - Chemica	al Safety Asses	sment - Evaluat	ion of Safe Use	
	in the Cumple			Use Descriptor		Inhalatory exposure	1			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Functional fluids	2)45. 8545. 8545.	Transfers from drums to filling machinery	CS8	PROC8a Discharging to/from vessels (non-dedicated)	1472.39		1472.39	13.71	n/a		13.71	n/a	
	Protestonen SUZZ	filling from small containers e.g. cans	CS22	PROC9 Transfer of chemicals into small containers	736.20		736.20	6.86	n/a		6.86	n/a	
	Professional Su28	manual filling from drums		PROC9 Transfer of chemicals into small containers	736.20		736.20	6.86	n/a		6.86	n/a	
	Professional SN22	operation of equipment containing functional fluids	CS15	PROC1	0.29		0.29	0.34	n/a		0.34	n/a	
	RO(00,50) No. 1	operation of equipment containing functional fluids	CS15	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37	n/a		1.37	n/a	
	8/35 8/35 8/35 8/35 8/35 8/35 8/35 8/35	operation of equipment containing functional fluids	CS15	PROC3	294.48		294.48	0.34	n/a		0.34	n/a	
	Professional SN22	operation of equipment containing functional fluids	CS16	PROC20 Heat and pressure transfer fluids (closed systems)	147.24		147.24	1.71	n/a		1.71	n/a	
	Socies inter	operation of equipment containing functional fluids at elevated temperatures	CS16	PROC20 Heat and pressure transfer fluids (closed systems)	6625.00	Vent (0.7)	1987.50	1.71	n/a		6.86	n/a	15% of the LEL has been applied as the Tier 1 estimate due to elevated temperature
	\$100 miles   100 m	Re-work on off specification articles	CS19	PROC9 - Transfer of chemicals into small containers	736.20		736.20	6.86	n/a		6.86	n/a	
	2783, 2783,	maintenance of equipment	CS5	PROC8a Discharging to/from vessels (non-dedicated)	1472.39		1472.39	13.71	n/a		13.71	n/a	
	Protessional SU32	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.29		0.29	0.34	n/a		0.34	n/a	
	SASS	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	147.24		147.24	1.37	n/a		1.37	n/a	

1.13 Use in Laboratory Applications – Industrial

	Table	1: Mapping Use	es in the Supply	Chain		Table 2: Chara	cterising the Ri	sk - High VP Lic	quids - Chemica	I Safety Asses	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposure	9			Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use in laboratories	industrial - SU3, 8, etc	CS36 Laboratory activities	CS36	PROC15	147.24		147.24	0.34	n/a		0.34	n/a	
		CS47 Cleaning [wiping, brushing, flushing]	CS47	PROC10	736.20		736.20	27.43	n/a		27.43	n/a	

1.14 Use in Laboratory Applications – Professional

	Table		es in the Supply	Chain		Table 2: Chara	cterising the Ri	sk - High VP Lic	juids - Chemica	I Safety Asses:	sment - Evaluat	ion of Safe Use	
				Use Descriptor		Inhalatory exposur				Dermal exposure			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	TRA Predicted Exposure (mg/m3) no modifiers	Inhalation RMM (efficiency)	Predicted Inhalation Exposure (mg/m3) modified	TRA Predicted Dermal Systemic Exposure (mg/kg/d) - no modifiers	TRA Predicted Dermal Local Exposure (mg/cm2/d) - no modifiers	Dermal RMM (efficiency)	Predicted Systemic Dermal Exposure (mg/kg/d) modified	Predicted Local Dermal Exposure (mg/cm2/d) modified	Comments
Use in	Professional -	CS36 Laboratory	CS36	PROC15	147.24		147.24	0.34	n/a		0.34	n/a	
laboratories	SU22	activities										100	
	SU22	CS47 Cleaning [wiping, brushing, flushing]	CS47	PROC10		LEV (0.8) Vent (0.7)	88.34	27.43	n/a	LEV (0.95)	1.3715	n/a	

## Appendix 2B Exposure Estimations – consumer

1.1 Uses in Coatings – Consumer

1.1 U	ses in C	oatings -	– Consun	<u>ner</u>																
Mapping																				
Generic Exposure		Relevant Use Sentinel	Product sub Category															TRA+ Predicted	Exposure - includ	ing RMM when needed cific)
Scenario Short Title	Area of Application / UD	Product	Sentinels	Indicator for Basis of Exposure	Concentratio	EFC1	amount of	EFC2	Glove Factor	EFC3	Amount swallowed	EFC4	location	Air exchange	EFC5	Room Volume	EFC6	Predicted Dermal	Predicted Oral	Predicted Inhalation
SHUIT HILE				Estimate	n (weight fraction)	L	use (g)	<u> </u>	acioi		(g)	_		rate		(m3)		Exposure (ma/ka/d) d	Exposure (maka/d) o	Exposure (mg/m3)
Coating	10101101101010101	PC1:Adhesives, sealants	Glues, hobby use	Based upon daily use														0.00476		8.52
Covers the use in coatings (paints, niks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.	Gehalmdri-SU23	PC1:Adhesives, sealants	Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Based upon infrequent use (<365 days/yr)														0.00006		17.48
																		0.00476		
PC1, PC4, PC8, PC9, PC15, PC18, PC23, PC24, PC31, PC34, (PC5, PC10)	. ContumentSU2if	PC1:Adhesives, sealants	Glue from spray	Based upon daily use																80.56
	Consumer SU24	PC1:Adhesives, sealants	Sealants	Based upon daily use														0.00119		35.25
	Contumer!'SU2.1	PC4_n:Anti-freeze and de-icing products	Washing car window	Based upon daily use			L													0.00
	Consumeri/SU21	PC4_n:Anti-freeze and de-icing products	Pouring into radiator	Based upon daily use		İ												0.00238		1.81
		PC4_n:Anti-freeze and	Lock de-icer	Based upon daily					1									0.00179		0.51
	- Çonjunjeri SU[24	PC8_n: Blocidal products (excipient use only for solvent products)	Laundry and dish washing products	Based upon daily use														0.00014		0.67
	Gohsulmeti-SU2'1	PC8_n: Bloddal products (excipient use only for solvent products)	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal deaners)	Based upon daily use														0.00943		0.84
	Gchsilmeh-SU21	PC8_n: Biocidal products (excipient use only for solvent products)	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Based upon daily use														0.00238		1.73
	Gonsument/9U21	PC9a:Coatings and paints, filers puties, thinners		Based upon daily use														0.03144		105.35
	Çonşameri,9U21	PC9a:Coatings and paints, fillers puties, thinners	Solvent rich, high solid, water borne paint	Based upon daily use														0.03144		520.64
	Consumeri/SU21	PC9a:Coatings and paints, fillers putties,	Aerosol spray can	Based upon daily use																34.29
	Constraint 9U21	PC9a:Coatings and paints, filers puties, thinners	Removers (paint-, glue-, wall paper-, sealant-remover)	Based upon daily use														0.05717		595.68
	Contument/SU21	PC9b:Fillers, putties, plasters, modeling clay	Fillers and putty	Based upon daily use														0.00476		5.37
	Gonsimeri-SU21	PC9b:Fillers, putties, plasters, modeling clay	Plasters and floor equalizers	Based upon infrequent use														0.00188		22.02
	. Consumert SU2.1	PC9b:Fillers, putties, plasters, modeling clay	Modelling clay	Based upon daily use															1.00	
	Consumert SU21	PC9c:Finger paints	Finger paints	Based upon daily use															67.50	
	Gdhalmeh SU21	PC15_n: Non-metal surface treatment products		Based upon daily use														0.03144		105.35
	- Contumert SU24	PC15_n: Non-metal surface treatment products	Solventrich, high solid, water borne paint	Based upon daily use														0.03144		520.64
	Contumeri/SU21	PC15_n: Non-metal surface treatment products	Aerosol spray can	Based upon daily use																34.29
	Contumeri'SU21	PC15_n: Non-metal surface treatment products	Removers (paint-, glue-, wall paper-, sealant-remover)	Based upon daily use														0.05717		595.68
	Consumert SU21	PC18_n: Ink and toners	lnks and toners.	Based upon daily use														0.00524		10.18
	Gchalmdd SU21	PC23_n: Leather tanning, dye, finishing, impregnation and care products	Polishes, wax / cream (floor, furniture, shoes)	Based upon daily use														0.01768		50.84
	Conjument/SU24	PC23_n: Leather tanning, dye, finishing, impregnation and care products	Polishes, spray (furniture, shoes)	Based upon daily use														0.00478		17.62
	, Consumert SU2,1	PC24: Lubricants, greases, and release products	Liquids	Based upon daily use														0.00260		3.98
	. Consumert SU2.1	PC24: Lubricants, greases, and release products	Pastes	Based upon daily use																
	, Consumert SU2,1	PC24: Lubricants, greases, and release products	Sprays	Based upon daily use														0.00238		12.06
	Gchs[met-SU21	PC31:Polishes and wax blends PC31:Polishes and wax	furniture, shoes)	Based upon daily use Based upon daily														0.01768		128.91
<u> </u>	Contumer SU21	PC31:Polishes and wax blends PC34_n: Textile dyes,	Polishes, spray (furniture, shoes)	Based upon daily use Based upon daily	-	-	-	-	1		-							0.00478	-	11.01
		finishing and impregnating products	<u> </u>	use																

1.2 Uses in Cleaning – Consumer

	Coes in C	reaming	Consumer																	
Table 1: Mapping Consumer Uses in the Supply Chain																				
Generic Exposure		Relevant Use Sentinel	Product sub Category															TRA+ Predictor	Exposure - inclu	ding RMM when
Scenario		Product Sertine	Sentinels	Indicator for Basis	Concentration	EEC1	lamount of	EFC2	Glove	EFC3	Amount	FEC4	location	Air	EFC5	Room	IEFC6	Predicted Dermal	(substance spe	ecific)
Short Title	Area of Application / UD			of Exposure Estimate	n (weight fraction)		use (g)		Factor		swallowed (g)			exchange rate		Volume (m3)		Exposure (mg/kg/d)	Exposure (mg/kg/d)	Predicted Inhal Exposure (mg/
Cleaning	Cpnsumeti-SU21	PC3:Air care products	Air care, instant action (aerosol sprays)	Based upon daily			Π		Π			l		Ι		1	Τ	d	o	0.096731
Covers general exposures to	Cohsûmerl:SU21	PC3:Air care products	(aerosor sprays)	use																4.836529
consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings.			Air care, instant action (aerosol sprays)-pesticidal- exciplent only	Based upon daily use																
de-icers, lubricants and air care																				
products. PC3, PC4, PC8 (excipient only), PC9, PC24, PC35, PC38	Cohsûmeri:SU21	PC3: Air care products	Air care, continuous action (solid and liquid)	Based upon daily use														0.000010		0.1653
	Cohsûmerl:SU21	PC3:Air care products	Air care, continuous action (solid and liquid)-pesticidal-	Based upon daily														0.000001		0.8265
	: Dohşümerl:9021	PC4_n:Anti-freeze and de-icing products	excipient only Washing car window	Based upon daily																0.0001
	Dohşümleri 9021	PC4_n:Anti-freeze and de-icing products	Pouring into radiator	Based upon daily use														0.00238		1.8072
		PC4_n:Anti-freeze and de-icing products	Lock de-icer	Based upon daily use														0.00179		0.5110
	Consumeit:SU21	PC8_n: Biocidal products (excipient use only for solvent products)	Laundry and dish washing products	Based upon daily use														0.00014		0.6750
	Consumeri-SU21	PC8_n: Biocidal products (excipient use only for solvent products)	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Based upon daily use														0.00943		0.8420
	Consumeri;SU21	PC8_n: Biocidal products (excipient use only for solvent products)	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	Based upon daily use														0.002378		1.7347
	Consumerl;SU21	PC9a:Coatings and paints, fillers putties, thinners	Waterborne latex wall paint	Based upon daily use														0.031		105.349
	Consumeri;SU21	PC9a:Coatings and paints, fillers putties, thinners	Solvent rich, high solid, water bome paint	Based upon daily use														0.031		520.639
	Consumeri-SU21	PC9a:Coatings and paints, fillers putties, thinners	Aerosol spray can	Based upon daily use																34.290
	Consumeri-SU21	PC9a:Coatings and paints, fillers putties, thinners	Removers (paint-, glue-, wall paper-, sealant-remover)	Based upon daily use														0.0572		595.6834
	Consumeri;SU21	PC9b:Fillers, putties, plasters, modeling clay	Fillers and putty	Based upon daily use														0.0048		5.3673
	Cohsûmerl:SU21	PC9b:Fillers, puttles, plasters, modeling clay	Plasters and floor equalizers	Based upon infrequent use (<365 days/yr)														0.0019		22.0172
	Consumeri+SU21	PC9b:Fillers, putties, plasters, modeling clay	Modelling clay	Based upon daily use														2.544	1	
	. Consumeti-SU21 .	PC9c:Finger paints	Finger paints	Based upon daily use														127.2	67.5	
	Consumeit-SU21	PC24: Lubricants, greases, and release products	Liquids	Based upon daily use														0.0026		3.9758
	: Consumeri-9U21	PC24: Lubricants, greases, and release	Pastes	Based upon daily use																
	Cpnşumeţi-ŞU21	products PC24: Lubricants, greases, and release		Based upon daily														0.00238		12.06054
	Consumeti-SU21	PC35:Washing and cleaning products	Sprays	use														0.00014		0.67495
	Consumeti-SU21	(including solvent based products)  PC35:Washing and	Laundry and dish washing products	Based upon daily use														0.00943		0.84202
		cleaning products (including solvent based products)	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	Based upon daily use																
	Consumeit-SU 21	PC35:Washing and cleaning products (including solvent based products)	Cleaners, trigger sprays (all	Based upon daily use														0.00238		1.73473
	Consumeri/SU21	PC38_n: Welding and soldering products, flux products	NOTE, n_assessment not in TRA	Based upon daily use																3.75990

#### 1.3 Use as a Fuel – Consumer

Table 1: Mapping Consumer Uses in the Supply Chain																				
Generic Exposure Scenario		Relevant Use Sentinel Product	Product sub Category Sentinels															TRA+ Predicted	Exposure - Indu	ding RMM when needed
Short Title	Area of Application / UD	riodia		Indicator for Basis of Exposure Estimate	Concentration (weight fraction)	EFC1	amount of use (g)	EFC2	Glove Factor	EFC3	Amount swallowed (g)	EFC4	location	Air exchange rate	EFC5	Room Volume (m3)	EFC6	Predicted Dermal Exposure (mg/kg/d)		Predicted Inhalation Exposure (mg/m3)
																		d	0	
Fuels	Construct SU21	PC13:Fuels	Liquid - subcategories added: Automotive Refuelling	Based upon daily use														0.00035		1.53930
PC13	Consumert SU21	PC13:Fuels	Liquid - subcategories added: Scooter Refuelling	Based upon daily use														0.000231		1.02111
	Conseque (SU21	PC13:Fuels		Based upon daily use																7.27923
	Consumer/SU21	PC13:Fuels	Liquid (subcategories added): Garden Equipment - Retueling	Based upon daily use														0.00042		0.80887
		PC13:Fuels	Liquid (subcategories added): Home space heater fuel	Based upon daily use														0.00021		0.23228
	Construct Su21	PC13:Fuels	Liquid - subcategories added: Lamp oil	Based upon daily use														0.000091		0.13489

1.4 Other Uses – Consumer

Table not applicable

#### Appendix 3a

#### Risk characterisation - worker

#### 1.1 Manufacture of Substance - Industrial

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Manufacture of	Industrial -	General process	CS15	PROC1 Closed	0.000	0.001	0.001
substance	SU8/9/3	exposures (no sampling)		process (no sampling)			
	Industrial - SU8/9/3	General process exposures and sample collection	CS15	PROC2 Closed continuous process (with sampling)	0.049	0.003	0.052
	Industrial - SU8/9/3	General process exposures	CS15	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial - SU8/9/3	General exposures open batch process	CS16	PROC4 batch process with exposure	0.098	0.016	0.114
	Industrial - SU8/9/3	Sample collection	CS2	PROC8b Dedicated discharging to/from vessels	0.147	0.016	0.163
	Industrial - SU8/9/3	Laboratory activities	CS36	PROC15 Use in laboratory	0.049	0.001	0.050
	Industrial - SU8/9/3	Bulk transfers (no lev)	CS14, CS108	PROC8b Dedicated discharging to/from vessels	0.147	0.016	0.163
	Industrial - SU8/9/3	Bulk transfers (with lev)	CS14, CS107	PROC8b Dedicated discharging to/from vessels	0.147	0.016	0.163
	Industrial - SU8/9/3	Clean down and Maintenance	CS39	PROC8a Non- dedicated discharging to/from vessels	0.245	0.032	0.277
	Industrial - SU3 / SU10	Storage	CS67	PROC1 Closed process (no sampling)	0.000	0.001	0.001
	Industrial - SU3 / SU10	Storage	CS67	PROC2 Closed continuous process (with sampling)	0.049	0.003	0.052

#### 1.2 Distribution of Substance – Industrial

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Distribution of substance	industrial - SU3	General process exposures - closed process (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	PROC1 Closed process (no sampling)	0.000	0.001	0.001
	Industrial - SU3	General process exposures (occasional controlled exposure)	CS15	PROC2 Closed continuous process (with sampling)	0.049	0.003	0.052
	Industrial - SU3	General process exposures - closed batch process	CS15	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial -SU3	General exposures open batch process	CS16	PROC4 batch process with exposure	0.098	0.016	0.114
	Industrial - SU3	Sample collection	CS2	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial - SU3	Laboratory activities	CS36	PROC15 Use in laboratory	0.049	0.001	0.050
Combine in narrative as Bulk Transfer CS14 unless differentiation required in practice	industrial - SU3	Bulk closed loading and unloading NEW CS (e.g. road/rail car bottom loading/unloading; marine vessel/barge loading/unloading;)	CS14, CS107 Bulk transfers (closed systems)	PROC8b Dedicated Discharging to/from vessels	0.147	0.016	0.163
LEV option	Industrial - SU3	Bulk open loading NEW CS (e.g. road/rail car top loading, <b>may</b> <b>involve LEV</b> )	CS14, CS108 Bulk transfers (open systems)	PROC8b Dedicated discharging to/from vessels	0.147	0.016	0.163
	Industrial - SU3	Drum and small package filling	CS6	PROC9 Transfer of substance/mixture into small containers	0.196	0.016	0.212
	Industrial - SU3	Clean down and Maintenance	CS39	PROC8a Non- dedicated discharging to/from vessels	0.245	0.032	0.277
	Industrial - SU3	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001
	Industrial - SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052

1.3 Formulation & (Re)packing of Substances and Mixtures – Industrial

1.5 1 01111	Table 1: Mapping Uses		ing or suc	stances ar	TG TVIIITEGI	es maa	
	User Group	Contributing Scenarios	CS Ref	Use Descriptor Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Formulation & (re)packing of substances and mixtures	Industrial - SU3/SU10	General process exposures (no sampling) (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	PROC1 Closed process (no sampling)	0.000	0.001	0.001
	Industriai - SU3/ SU10	General process exposures and sample collection	CS15	PROC2 Closed continuous process (with sampling)	0.049	0.003	0.052
Si. Jin	Industrial - SU3/ SU10	General process exposures (e.g. In- line additive dosing equipment, in-line filter cleaning)	CS15	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial SU3/ SU10	General exposures open batch process	CS16	PROC4 batch process with exposure	0.098	0.016	0.114
Elevated temperature therefore applied value for medium volatility	Industrial - SU3/ SU10:	Batch processes at elevated temperatures (e.g. solvents resin manufacture, grease manufacture)	CS136	PROC3 Closed batch process (with sampling)	0.663	0.001	0.663
	industrial - SU3/ SU10	Sample collection	CS2	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial - SU3/ SU3	activities	CS36	PROC15 Use in laboratory	0.049	0.001	0.050
	Industrial - SU3/ SU10 Industrial - SU3/	Mixing operations	CS14 CS30	PROC8b Dedicated discharging to/from vessels  PROC5 Mixing or	0.147	0.016	0.163
	SU10:	(open systems) Transfer	CS34 + CS22	blending  PROC8a Non-	0.245	0.032	0.277
	\$U10	from/pouring from containers , Manual		dedicated discharging to/from vessels			
	Industrial -SU3/ SU10	transfers	CS8	PROC8b Dedicated discharging to/from vessels	0.147	0.016	0.163
	Industrial - SU3/ SU10	Tabletting, compression, extrusion or pelletisation	CS100	PROC14 Production of preparation by tabletting, compression, extrusion, pelletisation	0.245	0.008	0.253
	Industrial: - \$U3/ \$U10	Drum and small package filling	CS6	PROC9 Transfer of substance/mixture into small containers	0.196	0.016	0.212
	Industrial - SU3/ SU10	Clean down and Maintenance	CS39	PROC8a Non- dedicated discharging to/from vessels	0.245	0.032	0.277
	Industrial: -SU3/ SU10:		CS67	PROC1 Closed process (no sampling)	0.000	0.001	0.001
	Industrial - SU3/ SU10	Storage	CS67	PROC2 Closed continuous process (with sampling)	0.049	0.003	0.052

#### 1.4 Uses in Coatings – Industrial

	Table 1: Mapping Uses						
	in the Comple			Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use in Coatings (Industrial Application)	s Industrial -SU3	General exposures (closed systems) [CS15].	[CS15]	PROC1 - Use in closed process, no likelihood of exposure	0.000	0.001	0.001
	Industrial -\$U3	General exposures (closed systems) [CS15].	[CS15] [CS56] [CS38]	PROC2 - Use in closed, continuous process with occasional controlled	0.049	0.003	0.052
	Industrial - SU3	Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94].	[CS94]	PROC2 - Use in closed, continuous process with occasional controlled exposure	0.663	0.003	0.666
	industrial - SU3	Mixing operations (closed systems) [CS29].	[CS29] [CS15]	PROC3 - Use in closed batch process (synthesis or formulation)	0.098	0.001	0.099
	Industrial - SU3	Film formation - air drying [CS95].	[CS95]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	0.098	0.016	0.114
	industrial - \$U3	Preparation of material for application [CS96].	[CS96] [CS30]	PROC5 -Mixing or blending in batch processes (multistage and/or significant contact)	0.245	0.032	0.277
	Industrial - SU3	Spraying (automatic/robotic) [CS97].	[CS97]	PROC7 -Industrial spraying	0.491	0.099	0.590
	Industrial - SU3	Manual [CS34].	[CS34] [CS10]	PROC7 -Industrial spraying	0.491	0.099	0.590
Duration Option	Industrial - SU3	Material transfers [CS3].	[CS3]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	0.245	0.032	0.277
	Industrial - SU3	Material transfers [CS3].	[CS3]	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	0.147	0.016	0.163
	Industrial - SU3	Roller, spreader, flow application [CS98].	[CS98]	PROC10 - Roller application or brushing	0.245	0.063	0.309
	industrial - \$U3	Dipping, immersion and pouring [CS4].	[CS4]	PROC13 - Treatment of articles by dipping and pouring	0.245	0.032	0.277
	Industrial - SU3	Laboratory activities [CS36].	[CS36]	PROC15 - Use of laboratory reagents in small scale laboratories	0.049	0.001	0.050
	Industrial - SU3	Material transfers [CS3].	[CS3] [CS8] [CS22]	PROC9 -Transfer of chemicals into small containers (dedicated filling line)	0.196	0.016	0.212
	Industrial - SU3	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100].	[CS100]	PROC14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation	0.245	0.008	0.253

1.5 Use in Cleaning Agents – Industrial

	Table 1: Mapping Uses						
	in the Cumple			Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use in Coatings (Industrial Application)	i Industrial -SU3	General exposures (closed systems) [CS15].	[CS15]	PROC1 - Use in closed process, no likelihood of exposure	0.000	0.001	0.001
	Industrial -SU3	General exposures (closed systems) [CS15].	[CS15] [CS56] [CS38]	PROC2 - Use in closed, continuous process with occasional controlled	0.049	0.003	0.052
	Industrial - SU3	Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94].	[CS94]	PROC2 - Use in closed, continuous process with occasional controlled exposure	0.663	0.003	0.666
	Industrial - SU3	Mixing operations (closed systems) [CS29].	[CS29] [CS15]	PROC3 - Use in closed batch process (synthesis or formulation)	0.098	0.001	0.099
	Industrial - SÚ3.	Film formation - air drying [CS95].	[CS95]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	0.098	0.016	0.114
	Industrial - SU3	Preparation of material for application [CS96].	[CS96] [CS30]	PROC5 -Mixing or blending in batch processes (multistage and/or significant contact)	0.245	0.000	0.246
	Industrial - SU3	Spraying (automatic/robotic) [CS97].	[CS97]	PROC7 -Industrial spraying	0.491	0.099	0.590
	Industrial - SU3	Manual [CS34].	[CS34] [CS10]	PROC7 -Industrial spraying	0.491	0.099	0.590
Duration Option	Industrial - \$U3	Material transfers [CS3].	[CS3]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	0.245	0.032	0.277
	Industrial - \$U3	Material transfers [CS3].	[CS3]	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	0.147	0.016	0.163
	industrial - SU3	Roller, spreader, flow application [CS98].	[CS98]	PROC10 - Roller application or brushing	0.245	0.063	0.309
	Industrial - SU3	Dipping, immersion and pouring [CS4].	[CS4]	PROC13 - Treatment of articles by dipping and pouring	0.245	0.032	0.277
	Industrial - SU3	Laboratory activities [CS36].	[CS36]	PROC15 - Use of laboratory reagents in small scale laboratories	0.049	0.001	0.050
	Industrial - SU3:	Material transfers [CS3].	[CS3] [CS8] [CS22]	PROC9 -Transfer of chemicals into small containers (dedicated filling line)	0.196	0.016	0.212
	Industrial - SU3	Production or preparation or articles by tabletting, compression, extrusion or pelletisation [CS100].	[CS100]	PROC14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation	0.245	0.008	0.253

1.6 Use in Cleaning Agents – Professional

1.6 Use II		ng Agents -						
	Tab User Group	le 1: Mapping Uses  Contributing Scenarios	in the Suppl	Use Descriptor Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)	
The professional use as a component of cleaning products.	Professional - t SU22	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	PROC8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	0.245	0.016	0.261	
	Professional - SU22	Automated process with (semi) closed systems. [CS93].	[CS93]	PROC2 - Use in closed, continuous process with occasional controlled exposure	0.049	0.003	0.052	
	Proféssiohal SU22	Automated process with (semi) closed systems. [CS93].	[CS93]	PROC3 - Use in closed batch process (synthesis or formulation)	0.098	0.001	0.099	
	Professional - SU22	Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	[CS76]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	0.245	0.016	0.261	
	Professional - SU22	Filling / preparation of equipment from drums or containers. [CS45].	[CS45]	PROC8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities.	0.491	0.032	0.523	
	Professional - SU 22	Manual (CS34).	[CS34]	PROC13 - Treatment of articles by dipping and pouring	0.245	0.032	0.277	
	Prófessional - SU22	Cleaning with low- pressure washers [CS42].	[CS42]	PROC10 - Roller application or brushing	0.491	0.063	0.554	
	Professional - SU22	Cleaning with high pressure washers [CS44].	[CS44]	PROC11- Non industrial spraying	0.589	0.248	0.837	
	Protessional : SU22	Cleaning with high pressure washers [CS44].	[CS44]	PROC11- Non industrial spraying	0.589	0.248	0.837	
	Professional - SU22	Manual [CS34].	[CS34]	PROC10 - Roller application or brushing	0.491	0.063	0.554	
	Professional - SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	PROC10 - Roller application or brushing	0.491	0.063	0.554	
	Professional: SU22	Ad hoc manual application via trigger sprays, dipping, etc. [CS27].	[CS27]	PROC10 - Roller application or brushing	0.491	0.063	0.554	
	Pròféssiohal : SU22	Application of cleaning products in closed systems [CS101].	[CS101]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	0.245	0.016	0.261	
	Professional - SU22	Cleaning of medical devices [CS74].	[CS74]	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	0.245	0.016	0.261	

1.7 Use as a Blowing Agent – Industrial

1.7 Use	Table 1:	owing A	gent – I	I			
	Mapping Uses			Use Descriptor			
	User Group	Contributing Scenarios	CS Ref	Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Blowing agents	industrial - SU 3	Delivery of solvent to plant storage	CS14	PROC8b	0.147	0.016	0.163
	Industrial - SU 3	Injection and mixing into molten polymer mass in extruder	CS29	PROC1	0.000	0.001	0.001
	Industrial -SU 3	Foam production through polymer extrusion	CS122	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Foam panel finishing (shaving/cutting)	CS134	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Foam panel shavings recycling	CS123	PROC12	0.098	0.001	0.099
	Industrial -SU 3	Foam panel packing	CS124	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Foam panel curing	CS67	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Mixing with polystyrene beads in reactor	CS29	PROC3	0.663	0.001	0.663
	Industrial - SU 3	Transfer to and holding in waiting tank	CS66	PROC3	0.663	0.001	0.663
	Iridustria) - SU 3	Centrifuging of slurry of beads and process water	CS127	PROC3	0.663	0.001	0.663
	Industrial - SU 3	Drying of polystyrene powder/granules	CS12	PROC12	0.098	0.001	0.099
	industriaj - SU 3	Loading/packaging for transport to customers	CS128	PROC8b	0.147	0.016	0.163
	Industriai - SU 3	Steam-heating and expansion of expandable polystyrene granulate	CS129	PROC12	0.663	0.001	0.663
	Industria) - 30 d	Storage and ageing of partially expanded polystyrene granulate	CS129	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Moulding and block forming with expanded polystyrene granulate	CS130	PROC12	0.663	0.001	0.663
	Industrial - SU 3	Storage and cutting of expanded polystyrene articles	CS131	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Injection and mixing into pre- reaction component in blending tank	CS29	PROC3	0.098	0.001	0.099
	Indústria) - SU 3	Drum filling blended mix	CS6, CS45	PROC9	0.196	0.016	0.212
	Industrial - SU 3	Foam production through mixing of reactive components	CS132	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Foam compression to expel residual blowing agent	CS133	PROC12	0.098	0.001	0.099
	Industrial - SU 3	Foam article automated cutting	CS131	PROC12	0.098	0.001	0.099

1.8 Use in Agrochemicals – Professional

1.6 USC III Ag	Table 1: Mapping Uses in the Supply Chain						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use in Agrochemicals	Professional SU22	transfer from/pouring from containers	CS22	PROC8b Discharging to/from vessels	0.245	0.016	0.261
10 and 50 checked and GESs revised	Professional SU22	mixing in containers	CS23	PROC4 Closed batch process (with sampling)	0.245	0.016	0.261
	Professional SU22	spraying and fogging by manual application.	CS24	PROC11 - Non industrial spraying	0.589	0.248	0.837
	Professional SU22	spraying and fogging by machine application	CS25	PROC11 - Non industrial spraying	0.589	0.248	0.837
	Professional SU22	small ad hoc application via dipping, trigger sprays, etc	CS27	PROC13 - Treatment of articles by dipping and pouring	0.245	0.032	0.277
	Professional- SU22	cleandown and maintenance of equipment	CS26	PROC8a Discharging to/from vessels	0.491	0.032	0.523
	Professional SU22	disposal of wastes	CS28	PROC8a Discharging to/from vessels	0.491	0.032	0.523
	Professional SU22	Storage	CS67	PROC1	0.000	0.001	0.001
	Professional- SU23	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052

#### 1.9 Use as a Fuel – Industrial

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use as a fuel	Industrial -SU3	Bulk transfers (barge, rail and road)	CS14	PROC8b Dedicated Discharging to/from vessels	0.147	0.016	0.163
	Industrial -SU3	Transfers from drums and containers	CS8	PROC8b Dedicated Discharging to/from vessels	0.147	0.016	0.163
	Industrial -SU3	General use exposures as a fuel	CS15	PROC1 Use as a fuel	0.000	0.001	0.001
	Industrial -SU3	General use exposures as a fuel	CS15	PROC2 Use as a fuel	0.049	0.003	0.052
	Industrial -SU3	Use a fuel	CS15 CS107	PROC16 - use as a fuel	0.025	0.001	0.025
	Industrial -SU3	Use a fuel additive diluent	CS15 CS107	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Industrial -SU3	Vehicle/boiler maintenance	CS39 (changed from CS5)	PROC8a Non- dedicated Discharging to/from vessels	0.245	0.032	0.277
	Industrial -SU3	Cleaning fuel storage tanks	CS103	PROC8a Discharging to/from vessels	0.245	0.032	0.277
	Industrial -SU3	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001
	Industrial -SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052

#### 1.10 Use as a Fuel – Professional

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use as a fuel	Rrotessional-1	Bulk transfers	CS14	PROC8b	0.245	0.016	0.261
	3033	(e.g. heating oil and diesel deliveries)		Dedicated Discharging to/from vessels			
	Professional 9022	Transfers from drums and containers	CS8	PROC8b Dedicated Discharging to/from vessels	0.245	0.016	0.261
	R101829101921 3022	Refuelling vehicles, light aircraft or marine	CS-I Refuelling - Concawe	PROC8b Dedicated Discharging to/from vessels	0.245	0.016	0.261
	Professional- SU22	General use exposures as a fuel	CS15	PROC1 Use as a fuel	0.000	0.001	0.001
	Provessional BU22	General use exposures as a fuel	CS15	PROC2 Use as a fuel	0.049	0.003	0.052
	Professional 9022	Use a fuel additive diluent	GES16, CS15 CS107	PROC3 Closed batch process (with sampling)	0.098	0.001	0.099
	Professional SV22	Use a fuel	<del>GES16,</del> CS15 CS107	PROC16 - use as a fuel	0.049	0.001	0.050
	Professional 3022	Equipment maintenance e.g. Vehicle, boiler, pump maintenance, pump calibration	CS39	PROC8a Discharging to/from vessels	0.491	0.032	0.523
	Professional SU22	Vessel / container cleaning	CS103	PROC8a Discharging to/from vessels	0.491	0.032	0.523
	Professional- SU22	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001

#### 1.11 Use as Functional Fluids – Industrial

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Functional fluids	Industrial -SU10	Bulk transfers to/from storage	CS14, CS107	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001
	Industrial -SU10	Bulk transfers to/from storage	CS14, CS107	PROC2	0.049	0.003	0.052
10 and 50 checked and GESs revised	Industrial -SU10	Transfers from drums to filling machinery	CS8	PROC8b Discharging to/from vessels	0.147	0.016	0.163
	Industrial -SU10	filling articles from predominantly enclosed machines	CS53 delete, CS84, CS107	PROC9 Transfer of chemicals into small containers	0.196	0.016	0.212
	Industrial -SU10	manual filling of machines	CS45	PROC8a Discharging to/from vessels (non-dedicated)	0.245	0.032	0.277
	Industrial -SU10	operation of closed equipment containing functional fluids	CS15	PROC2	0.049	0.003	0.052
	Industrial -SU10	operation of open equipment containing functional fluids at elevated temperatures	CS16	PROC4 Use in batch and other process	0.663	0.016	0.678
	Industrial -SU10	Re-work on off specification articles	CS19	PROC9 Transfer of chemicals into small containers	0.196	0.016	0.212
	Industrial -SU10	maintenance of equipment	CS5	PROC8a Discharging to/from vessels (non-dedicated)	0.245	0.032	0.277
	Industrial -SU3	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001
	Industrial: -SU3	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052

#### 1.12 Use as Functional Fluids – Professional

	Table 1: Mapping Uses						
	User Group	Contributing Scenarios	CS Ref	Use Descriptor  Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Functional fluids	Professional 9022	Transfers from drums to filling machinery	CS8	PROC8a Discharging to/from vessels (non-dedicated)	0.491	0.032	0.523
	Professional 9U22	filling from small containers e.g. cans	CS22	PROC9 Transfer of chemicals into small containers	0.245	0.016	0.261
	Profesional SV22	manual filling from drums	CS45	PROC9 Transfer of chemicals into small containers	0.245	0.016	0.261
	Professional- SU22	operation of equipment containing functional fluids	CS15	PROC1	0.000	0.001	0.001
	Professional- SU22	operation of equipment containing functional fluids	CS15	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052
	Professional- 6022	operation of equipment containing functional fluids	CS15	PROC3	0.098	0.001	0.099
	RioTessional - 9022	operation of equipment containing functional fluids	CS16	PROC20 Heat and pressure transfer fluids (closed systems)	0.049	0.004	0.053
	Professional SU22	operation of equipment containing functional fluids at elevated temperatures	CS16	PROC20 Heat and pressure transfer fluids (closed systems)	0.663	0.016	0.678
	Professional SN22	Re-work on off specification articles	CS19	PROC9 - Transfer of chemicals into small containers	0.245	0.016	0.261
	Professional- Su22	maintenance of equipment	CS5	PROC8a Discharging to/from vessels (non-dedicated)	0.491	0.032	0.523
	Professional- \$022	Storage	CS67	PROC1 Closed continuous process (sometimes with sampling)	0.000	0.001	0.001
	Rivoresalonal- Su22	Storage	CS67	PROC2 Closed continuous process (sometimes with sampling)	0.049	0.003	0.052

1.13 Use in Laboratory Applications – Industrial

	Table	1: Mapping Use	es in the Supp	ly Chain			
	User Group	Contributing Scenarios	CS Ref	Use Descriptor Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	Substance Specific RCR (all routes)
Use in laboratories	Industrial - SU3, 8, etc	CS36 Laboratory activities	CS36	PROC15	0.049	0.001	0.050
	industrial - SU3, 8, etc	CS47 Cleaning [wiping, brushing, flushing]	CS47	PROC10	0.245	0.063	0.309

1.14 Use in Laboratory Applications – Professional

	Table	1: Mapping Use	es in the Suppl	y Chain			Substance Specific RCR (all routes)
	User Group	Contributing Scenarios	CS Ref	Use Descriptor Process Category equivalent	Substance Specific RCR (inhalation)	Substance Specific RCR (dermal)	
Use in laboratories	Professional - SU22	CS36 Laboratory activities	CS36	PROC15	0.049	0.001	0.050
	Professional - SU22	CS47 Cleaning [wiping, brushing, flushing]	CS47	PROC10	0.491	0.063	0.554

### Appendix 3B Exposure Estimations – consumer

#### 1.1 Uses in Coatings – Consumer

	Mapping Consumer L		<u>-</u>					
Generic Exposure Scenario		Relevant Use Product sub Sentinel Product Category Sentinels			Risk Characterization - including RMMs when needed (substan			substance Specific
Short Title	Area of Application / UD			Indicator for Basis of Exposure Estimate	RCR systemic (dermal, based on mg/kg/d))	RCR systemic (oral, based on mg/kg/d))	RCR systemic (inhalation based on mg/m3)	RCR systemic (all routes)
Coating	Consumeri-SU21	PC1:Adhesives,	Glues, hobby use	Based upon daily use	0.00	0	0.01	0.01
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar	Çonsumeri-SU21:	sealants PC1:Adhesives, sealants	Glues DIY-use (carpet glue, tile glue, wood parquet glue)	Based upon infrequent use (<365 days/yr)	0.00		0.03	0.03
methods) and equipment cleaning.								
PC1, PC4, PC8, PC9, PC15, PC18, PC23, PC24, PC31,PC34, (PC5, PC10)	Çênsumeri-SU21	PC1:Adhesives, sealants	Glue from spray	Based upon daily use	0.00		0.13	0.13
	Çonsumeri-SU21	PC1:Adhesives, sealants	Sealants	Based upon daily use	0.00		0.05	0.05
	Consumeri-SU21	PC4_n:Anti-freeze and de-icing	Washing car window				0.00	0.00
	Consumeri-SU21	products	Pouring into radiator		0.00		0.00	0.00
		and de-icing products	i ouring into radiator	use	0.00		0.00	0.00
		PC4_n:Anti-freeze and de-icing products	Lock de-icer	Based upon daily use	0.00		0.00	0.00
	Consumert-SU21:	PC8_n: Biocidal products (excipient use only for solvent products)	Laundry and dish washing products	Based upon daily use	0.00		0.00	0.00
	Consumert-9021;	PC8_n: Biocidal products (excipient use only for solvent products)	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal	Based upon daily use	0.00		0.00	0.00
	: : ::::::::::::::::::::::::::::::::::	PC8_n: Biocidal products (excipient use only for solvent products)	cleaners )  Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass	Based upon daily use	0.00		0.00	0.00
	Consumert-SU21:	PC9a:Coatings and	cleaners) Waterborne latex	Based upon daily	0.00		0.16	0.16
		paints, fillers putties, thinners	wall paint	use	0.00		0.10	0.10
	Consumert-SU21:	PC9a:Coatings and paints, fillers putties, thinners	Solvent rich, high solid, water borne paint	Based upon daily use	0.00		0.81	0.81
	Consumert-SU21.	PC9a:Coatings and paints, fillers putties, thinners	Aerosol spray can	Based upon daily use			0.05	0.05
	Consumert-SU21	PC9a:Coatings and paints, fillers putties,	glue-, wall paper-,	Based upon daily use	0.00		0.93	0.93
	Consumerf-SU21	thinners PC9b:Fillers, putties, plasters, modeling clay	sealant-remover) Fillers and putty	Based upon daily use	0.00		0.01	0.01
	Consumert-SU21:	PC9b:Fillers, putties, plasters,	Plasters and floor equalizers	Based upon infrequent use (<365	0.00		0.03	0.03
	Bónsumert-SU21	modeling clay PC9b:Fillers, putties, plasters,	Modelling clay	days/yr) Based upon daily use		0.00	#DIV/0!	0.00
		modeling clay						
	Consumert-SU21:  Consumert-SU21:	PC9c:Finger paints PC15_n: Non-	Finger paints  Waterborne latex	Based upon daily use Based upon daily	0.00	0.32	#DIV/0! 0.16	0.32
		metal surface treatment products	wall paint	use				
	Consumert-SU21	PC15_n: Non-metal surface treatment products	Solvent rich, high solid, water borne paint	Based upon daily use	0.00		0.81	0.81
	Consumert-S⊌21	PC15_n: Non-metal surface treatment products	Aerosol spray can	Based upon daily use			0.05	0.05
	Censumerl-SU21	PC15_n: Non-metal surface treatment products	Removers (paint-, glue-, wall paper-, sealant-remover)	Based upon daily use	0.00		0.93	0.93
	Consumert-9U21:	PC18_n: Ink and toners	Inks and toners.	Based upon daily use	0.00		0.02	0.02
	Gonsumert-S⊎21:	PC23_n: Leather tanning, dye, finishing, impregnation and	Polishes, wax / cream (floor, furniture, shoes)	Based upon daily use	0.00		0.08	0.08
	Consumert-SU21	care products PC23_n: Leather tanning, dye, finishing, impregnation and	Polishes, spray	Based upon daily	0.00		0.03	0.03
	Consumert-SU21	care products PC24: Lubricants, greases, and	(furniture, shoes)	use  Based upon daily use	0.00		0.01	0.01
	Consumert-9021	release products PC24: Lubricants, greases, and	Pastes	Based upon daily use			#VALUE!	
	:: Gonsumert-SU21;	release products PC24: Lubricants, greases, and	Sprays	Based upon daily use	0.00		0.02	0.02
	Consumert-SU21	release products PC31:Polishes and	Polishes, wax /	Based upon daily	0.00		0.20	0.20
	Consumeri-SU21	wax blends PC31:Polishes and	cream (floor, furniture, shoes) Polishes, spray	use Based upon daily	0.00		0.02	0.02
	Consumert-SU21	wax blends PC34_n: Textile	Polishes, spray (furniture, shoes)	Based upon daily use Based upon daily	0.00		0.02	0.02
		dyes, finishing and impregnating products		use				

#### 1.2 Uses in Cleaning – Consumer

Generic Exposure Scenario		Relevant Use	Product sub	Risk Characterization - including RMMs when needed (substance Spe				
		Sentinel Product	Category Sentinels	Indicator for Pagin of	digester for Regio of RCR systemic RCR systemic RCR systemic			
Short Title	Area of Application / UD			Exposure Estimate	(dermal, based on mg/kg/d))	(oral, based on mg/kg/d))	(inhalation based on mg/m3)	RCR systemic (al routes)
Cleaning	Consumert-SU21	PC3:Air care products	Air care, instant action (aerosol sprays)	Based upon daily use	d	0	0.00015	0.00015
Covers general exposures to	Consumeri-SU21	PC3:Air care products	, , , , , , , , , , , , , , , , , , , ,				0.00752	0.00752
consumers arising from the use of household		products						
products sold as			Air care, instant action (aerosol	Based upon daily				
vashing and cleaning roducts, aerosols,			sprays)-pesticidal- excipient only	use				
oatings, de-icers, ubricants and air care			exception only					
roducts.								
PC3, PC4, PC8 excipient only), PC9.	Consumert-SU21;	PC3:Air care products	Air care, continuous	Based upon daily	0.00		0.00026	0.00026
PC24, PC35, PC38		producto	action (solid and liquid)	use				
	Consumeri-SU21	PC3:Air care products	Air care, continuous		0.00		0.00129	0.00129
		products	action (solid and liquid)-pesticidal-	Based upon daily use				
	White he had effected	DC4 Anti-france	excipient only Washing car window	Daned was deily			0.00000	0.00000
	Consumeri-SU21	PC4_n:Anti-freeze and de-icing	wasning car window	use			0.00000	0.00000
	Çonsumen-SU21	PC4_n:Anti-freeze	Pouring into radiator		0.00		0.00281	0.00282
		and de-icing products		use				
		PC4_n:Anti-freeze and de-icing	Lock de-icer	Based upon daily	0.00		0.00079	0.00080
	Consumert-SU21	products		use	0.00		0.00105	0.00105
		PC8_n: Biocidal products (excipient	Laundry and dish	Based upon daily	-			
		use only for solvent products)	washing products	use				
	Gohsumen-SU21		Cleaners, liquids (all		0.00		0.00131	0.00135
		PC8_n: Biocidal	purpose cleaners, sanitary products,					
		products (excipient use only for solvent	floor cleaners, glass	Based upon daily use				
		products)	cleaners, carpet cleaners, metal					
	Consumeri-SU21	PC8_n: Biocidal	cleaners ) Cleaners, trigger	Based upon daily	0.00		0.00270	0.00271
		products (excipient use only for solvent	sprays (all purpose cleaners, sanitary	use				
		products)	products, glass cleaners)					
	: Consumeri-SU21	PC9a:Coatings and paints, fillers putties,	Waterborne latex wall paint	Based upon daily use	0.00		0.1638	0.1640
	Gönsumeri-SV21	thinners PC9a:Coatings and	Solvent rich, high	Based upon daily	0.00		0.8097	0.8099
	Go(is)u(ie)i-302ii	paints, fillers putties,	solid, water borne	use	0.00		0.6097	0.0099
	Gonsumert-SU21:	thinners PC9a:Coatings and	Aerosol spray can	Based upon daily			0.0533	0.0533
		paints, fillers putties, thinners		use				
	Gonsumert-SU21	PC9a:Coatings and paints, fillers putties,	Removers (paint-, glue-, wall paper-,	Based upon daily use	0.00		0.9264	0.9267
	Consumerf-SU21	thinners PC9b:Fillers,	sealant-remover) Fillers and putty	Based upon daily	0.00		0.0083	0.0084
		putties, plasters, modeling clay		use				
	Consumert-SU21	PC9b:Fillers, putties, plasters,	Plasters and floor equalizers	Based upon infrequent use (<365	0.00		0.0342	0.0343
	Consumert-SU21:	modeling clay PC9b:Fillers,	Modelling clay	days/yr) Based upon daily	0.01	0.00		0.0166
		putties, plasters, modeling clay		use				
	Consumen-SU21	PC9c:Finger paints	Finger paints	Based upon daily	0.59	0.32		0.9098
	Consumeri-SUZI		Liquids	use Based upon daily	0.00	U.UE	0.0062	0.0062
	Gonsumen-SUZI	PC24: Lubricants, greases, and	Liquius	use upon daily	0.00		0.0002	0.0002
		release products						
	Gönsumeri-SV21	PC24: Lubricants,	Pastes	Based upon daily	-		1	
	Systematical POCA	greases, and release products	. 30.00	use				
	Gonsumert-SU21:	PC24: Lubricants, greases, and		Based upon daily	0.00		0.0188	0.0188
		release products	Sprays	use	0.00		0.0040	0.0044
	Consumert-SU21	PC35:Washing and cleaning products			0.00		0.0010	0.0011
		(including solvent based products)	Laundry and dish	Based upon daily				
	Consumen-SU21	PC35:Washing and	washing products	use	0.00		0.0013	0.0014
		cleaning products (including solvent	Cleaners, liquids (all purpose cleaners,					
		based products)	sanitary products, floor cleaners, glass					
			cleaners, carpet cleaners, metal	Based upon daily				
	Maria de Maria	DO25/Marchine	cleaners)	use	0.00		0.0007	0.0027
	Consumeri-SU21	PC35:Washing and cleaning products	Cleaners, trigger sprays (all purpose		0.00		0.0027	0.0027
		(including solvent based products)	cleaners, sanitary products, glass	Based upon daily				
	Consumert-SU21	(including solvent		Based upon daily use			0.0058	0.0058

#### 1.3 Use as a Fuel – Consumer

Table 1:	Mapping Consumer L	Ises in the Supp	oly Chain					
Generic Exposure Scenario		Relevant Use Sentinel Product	Product sub Category Sentinels		Risk Characteriz	ation - including	RMMs when needed (	substance Specific
Short Title	Area of Application / UD		g,	Indicator for Basis of Exposure Estimate	RCR systemic (dermal, based on mg/kg/d))	RCR systemic (oral, based on mg/kg/d))	RCR systemic (inhalation based on mg/m3)	RCR systemic (al routes)
					d	0	i	t
Fuels	Consumert-SU21	PC13:Fuels	Liquid - subcategories added: Automotive Refuelling	Based upon daily use	0.0000016		0.0023939	0.0023956
PC13	Gonsumerl-SU21	PC13:Fuels	Liquid - subcategories added: Scooter Refuelling	Based upon daily use	0.0000011		0.0015880	0.0015891
	Consumert-SU21	PC13:Fuels	Liquid - subcategories added: Garden Equipment - Use	Based upon daily use			0.0113207	0.0113207
	Consumert-8021	PC13:Fuels	Liquid (subcategories added): Garden Equipment - Refueling	Based upon daily use	0.0000020		0.0012580	0.0012599
		PC13:Fuels	Liquid (subcategories added): Home space heater fuel	Based upon daily use	0.0000010		0.0003612	0.0003622
	Consumerf-SU21	PC13:Fuels	Liquid - subcategories added: Lamp oil	Based upon daily use	0.0000004		0.0002098	0.0002102

1.4 Other Uses – Consumer

Table not applicable

## APPENDIX B – QUALITATIVE RISK ASSESSMENT OF RISKS FROM FLAMMABLE SUBSTANCES

The accident scenarios relevant for REACH are minor accidents which might occur in the workplace and those related to consumer use. Major accidents caused by chemicals and the requirements to manage these risks are regulated under the Seveso II Directive and do not need to be considered.

Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures tailored to each specific risk. For flammable substances the following measures need to be implemented to control the risks and to show that safe use can be accomplished. For all flammable substances classified as R10, R11 or R12 (H220, H221, H224, H225, H226), safety data sheets should be made available in which the appropriate risk management measures are identified and communicated. Primary means of communication with the consumer is through the label.

#### Physicochemical Hazard Qualitative Risk Assessment

The regulatory framework for managing the risk arising from flammable materials is highly developed. The regulatory framework should be fully complied with and is sufficient to prevent minor accidents which occur at the workplace or during consumer use. Additional measures such as those shown below or those highlighted in the "check questionnaire for identifying accident risk factors due to physiochemical properties in the "Guidance on information requirements and chemical safety assessment – Part E: Risk Characterisation" or their equivalent should be implemented to further control this risk. –

Hazard	Material	Risk / Hazard	P Phrase	Qualitative Risk Assessment
		Phrase		
Extremely Flammable	• Gas	<ul> <li>R12 / H220         (Extremely flammable gas)</li> <li>R12 / H221         (Flammable gas)</li> </ul>	Prevention:  P210: Keep away from heat/sparks/open flames/ /hot surfaces No smoking.  Response  P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  P381: Eliminate all ignition sources if safe to do so.	<ul> <li>Electrostatic discharge may cause fire (Industrial)</li> <li>Ensure electrical continuity by bonding and grounding (earthing) all equipment. (Industrial / Professional).</li> <li>Do NOT use compressed air for filling, discharging or handling operations (Industrial).</li> <li>Electrostatic charges may be generated during pumping.</li> <li>Restrict line velocity during pumping in order to avoid generation of electrostatic discharge. (industrial)</li> <li>If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve (Industrial).</li> </ul>
			Storage:  • P403: Store in a well-ventilated place.	<ul> <li>Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks (Industrial/ Professional).</li> <li>The vapour is heavier than air, spreads along the ground and</li> </ul>

Hazard	Material	Risk / Hazard Phrase	P Phrase	Qualitative Risk Assessment
				<ul> <li>distant ignition is possible (Industrial).</li> <li>Substance         <ul> <li>Avoid Overfilling (Industrial/ Professional).</li> <li>Use appropriate equipment for filling IBCs and other containers. IBCs and other containers must be constructed of appropriate material) (Industrial).</li> </ul> </li> <li>Handle and open container with care in a well-ventilated area (Industrial/ Professional).</li> <li>Use only with adequate ventilation (Consumer).</li> <li>Do NOT empty into drains (Industrial/ Professional).</li> <li>Oxidising Agents</li> <li>Keep away from oxidising agents (Industrial/ Professional).</li> </ul>
Extremely Flammable	• Liquid	R12 / H224 (Extremely flammable liquid and vapour)	Prevention: P210: Keep away from heat/sparks/open flames/ /hot surfaces No smoking P233 Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting// equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P280: Wear protective gloves/eye protection/face protection.  Response: P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with	Risks arising from Flammability Classification Source of Ignition  • Electrostatic discharge may cause fire (Industrial) • Ensure electrical continuity by bonding and grounding (earthing) all equipment. (Industrial / Professional). • .Do NOT use compressed air for filling, discharging or handling operations (Industrial). • Electrostatic charges may be generated during pumping. • Restrict line velocity during pumping in order to avoid generation of electrostatic discharge. (industrial) • If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve (Industrial). • Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks (Industrial/ Professional). • The vapour is heavier than air, spreads along the ground and distant ignition is possible (Industrial).  Substance • Avoid Overfilling (Industrial/ Professional).

Hazard	Material	Risk / Hazard Phrase	P Phrase	Qualitative Risk Assessment
			water/shower • P370 + P378 : In case of fire: Use for extinction.	Use appropriate equipment for filling IBCs and other containers.  IBCs and other containers must be constructed of appropriate material) (Industrial).
			Storage:  • P403 + P235 : Store in a well-ventilated place. Keep cool.  • P501 : Dispose of contents/container to	<ul> <li>Handle and open container with care in a well-ventilated area (Industrial/ Professional).</li> <li>Do NOT empty into drains (Industrial/ Professional).</li> <li>Oxidising Agents</li> <li>Keep away from oxidising agents (Industrial/ Professional).</li> </ul>
Highly Flammable	• Liquid	R11 / H224 (Extremely flammable liquid and vapour)  R11 / H225 (Highly flammable liquid and vapour)	Prevention:  P210: Keep away from heat/sparks/open flames/ /hot surfaces No smoking  P233 Keep container tightly closed. P240: Ground/bond container and receiving equipment.  P241: Use explosion-proof electrical/ventilating/lighting// equipment.  P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P280: Wear protective gloves/eye protection/face protection.  Response: P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  P370 + P378: In case of fire: Use for extinction.  Storage: P403 + P235: Store in a well-ventilated place. Keep cool.	Risks arising from Flammability Classification Source of Ignition  • Electrostatic discharge may cause fire (Industrial) • Ensure electrical continuity by bonding and grounding (earthing) all equipment. (Industrial / Professional). • Do NOT use compressed air for filling, discharging or handling operations (Industrial). • Electrostatic charges may be generated during pumping. • Restrict line velocity during pumping in order to avoid generation of electrostatic discharge. (industrial) • If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve (Industrial).  • Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks (Industrial/ Professional). • The vapour is heavier than air, spreads along the ground and distant ignition is possible (Industrial).  Substance • Avoid Overfilling (Industrial/ Professional). • Use appropriate equipment for filling IBCs and other containers. IBCs and other containers must be constructed of appropriate material) (Industrial).

Hazard	Material	Risk / Hazard Phrase	P Phrase	Qualitative Risk Assessment
			P501 : Dispose of contents/container to	Do NOT empty into drains (Industrial/ Professional).  Oxidising Agents Keep away from oxidising agents (Industrial/ Professional).
Flammable	• Liquid	R10 / H225 (Highly flammable liquid and vapour)  R10 / H226 (Flammable liquid and vapour)	Prevention: P210: Keep away from heat/sparks/open flames/ /hot surfaces No smoking P233 Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting// equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P280: Wear protective gloves/eye protection/face protection.  Response: P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower P370 + P378: In case of fire: Use for extinction.  Storage: P403 + P235: Store in a well-ventilated place. Keep cool. P501: Dispose of contents/container to	Source of Ignition  Electrostatic discharge may cause fire (Industrial) Ensure electrical continuity by bonding and grounding (earthing) all equipment. (Industrial / Professional). Do NOT use compressed air for filling, discharging or handling operations (Industrial). Electrostatic charges may be generated during pumping. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge. (industrial) If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve (Industrial).  Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks (Industrial/ Professional). The vapour is heavier than air, spreads along the ground and distant ignition is possible (Industrial).  Substance  Avoid Overfilling (Industrial/ Professional). Use appropriate equipment for filling IBCs and other containers. IBCs and other containers must be constructed of appropriate material) (Industrial).  Handle and open container with care in a well-ventilated area (Industrial/ Professional). Use only with adequate ventilation (Consumer). Do NOT empty into drains (Industrial/ Professional).

# Annex III "Exposure Estimation for Environment" (PETRORISK file)

Annex III is updated in HSRC Consortium and will be sent to you after formal presentation