

**Identified Industrial Generic Exposure Scenarios (GESs) of Cumene**

GES No.	Subsector	Main SU	Description	PROC	ERC	Cumene
EC No.						202-704-5
CAS No.						98-82-8
1	Manufacture, Processing and Distribution of substances and mixtures	All Industrial Uses (SU3)	Manufacture, Processing (see examples below <sup>1</sup> ), Formulation and Distribution of the substance or mixtures. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15	ERC1, ERC2, ERC4, ERC6a  ERCs are to be checked with the ECT tool	x
3	Uses in Coatings	All Industrial Uses (SU3)	Covers the use in coatings (paints, inks, adhesives, and production of textiles, 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.	PROC5, PROC8a, PROC10, PROC13	ERC4  ERCs are to be checked with the ECT tool	x up to 5%

<sup>1</sup> Examples for processing: use as intermediate, use as monomer etc. use as solvent, use for the manufacturing of resins

<sup>2</sup> Polymer Examples: FRP, UV, VE

Please note also: PC's and AC's are only for consumer.  
For checking ERC's please use the respective environmental calculation tool (ECT) ECT Acetone or ECT Phenol or ECT Cumene or ECT AMS or ECT ACP

Identified Industrial PROCs

PROC No.	Cumene
EC No.	202-704-5
CAS No.	98-82-8
PROC1	x
PROC2	x
PROC3	x
PROC4	x
PROC5	x
PROC6	x
PROC8a	x
PROC8b	x
PROC9	x
PROC10 (2 uses)	x
PROC13	x up to 5%
PROC14	x
PROC15	x
<b>Sum</b>	<b>13</b>

## Worksheet 2. Worker Chemical Safety Assessment Template: Tables 1 and 2 - Worker Chemical Safety Assessment (CSA)

Substance specific information		Reference Values		
Substance	Cumene	DNEL worker - inhalation (long term)	20	ppm
CASnr	98-82-8	DNEL worker - inhalation (short term)		ppm
Substance volatility:	4.96 hPA	DNEL worker - dermal (long term)	15	mg/kg/day
TRA volatility range	medium			
physical property	liquid			
<b>Section 1</b>	<b>Exposure Scenario Title</b>			
<b>Exposure Scenario</b>	<b>Main sector of Use: SU3 = All Industrial Uses</b>			
	All Industrial Processes relevant for Cumene and Cumene containing products.			
Life Cycle Stage / Sector of Use	SU3 = All Industrial Uses			
Applicable Use Descriptors (PROC or PC)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15			
Applicable Use Descriptors (ERC or SpERC)	ERCs and local conditions are to be checked with the Excel tool ECT Cumene			
<b>Default Operational Conditions</b>				
<b>Product characteristics</b>				
Acute Hazard	R phrases: 10 - Flammable, 37 -Irritating to respiratory system, 65 - Harmful: may cause lung damage if swallowed			
<b>General measures</b>	Locate bulk storage outdoors [E2] Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1] Do not ingest. If swallowed then seek immediate medical assistance. [E14]			
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].			
physical form of product	Liquid, vapour pressure 0.5 - 10 kPa [OC4].			
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]			
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;			

<b>Section 2</b>	<b>Operational conditions and risk management measures</b>
<b>Section 2.1</b>	<b>Control of environmental exposure</b>
Product characteristics	substance is a unique structure, non-hydrophobic, aromatic hydrocarbon, biodegradable
Amounts used	Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Cumene' to calculate your maximum tonnage/year
Frequency and duration of use	Emission Days (days/year): 360d/y
Other Operational Conditions of use affecting environmental exposure	Indoor/Outdoor use
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %
Organisation measures to prevent/limit release from site	Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Cumene' to check your local conditions.
Conditions and measures related to municipal sewage treatment plant	Please use the Excel-Tool 'ECT Cumene' to check your local conditions.
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable regulations
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable regulations
Other environmental control measures additional to above	
<b>Section 2.2</b>	<b>Control of worker exposure</b>
	see chapter RMMs
<b>Section 3</b>	<b>Exposure Estimation</b>
<b>3.1. Health</b>	<a href="#">GES Worker Chemical Safety Assessment (CSA) Template</a>
	<a href="http://cefic.org/templates/shwPublications.asp?HID=750">http://cefic.org/templates/shwPublications.asp?HID=750</a>
<b>3.2. Environment</b>	<a href="#">ECT Cumene</a>
	<a href="http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx">http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx</a>
<b>Section 4</b>	<b>Guidance to check compliance with the Exposure Scenario</b>
<b>4.1. Health</b>	<i>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.</i>

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].Ensure operation is undertaken outdoors [E69].
4	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].Avoid carrying out activities involving exposure for more than 4 hours [28].
5	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility Ensure material transfers are under containment or extract ventilation [E66].
6	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		occasional exposure @ temp < 150 °C = medium volatility Ensure operation is undertaken outdoors [E69]. Wear suitable gloves tested to EN374 [PPE15].
7	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		occasional exposure @ temp < 150 °C = medium volatility Avoid carrying out activities involving exposure for more than 4 hours [28].Wear suitable gloves tested to EN374 [PPE15].
8	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Ensure material transfers are under containment or extract ventilation [E66].
9	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [27].Wear suitable gloves tested to EN374 [PPE15].
10	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Limit the substance content in the product to 25% [OC18].Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28].Wear suitable gloves tested to EN374 [PPE15].
11	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility Limit the substance content in the product to 5% [OC17].

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH	
12	PROC 6 -Calendering operations	Industrial SU3	-Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	Ensure material transfers are under containment or extract ventilation [E66].
13	PROC 6 -Calendering operations	Industrial SU3	-Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [27].Wear suitable gloves tested to EN374 [PPE15].
14	PROC 6 -Calendering operations	Industrial SU3	-Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	Limit the substance content in the product to 25% [OC18].Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28].Wear suitable gloves tested to EN374 [PPE15].
15	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	Ensure material transfers are under containment or extract ventilation [E66].
16	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Avoid carrying out activities involving exposure for more than 1 hour [27].Wear suitable gloves tested to EN374 [PPE15].
17	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Wear suitable gloves tested to EN374 [PPE15]. ; Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
18	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Limit the substance content in the product to 5% [OC17].
19	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	Ensure material transfers are under containment or extract ventilation [E66].
20	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Avoid carrying out activities involving exposure for more than 1 hour [27].
21	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	-Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
22	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	-Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	Ensure material transfers are under containment or extract ventilation [E66].

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACh	
23	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	- Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	Avoid carrying out activities involving exposure for more than 1 hour [27].
24	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	- Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
25	PROC 10 - Roller application or brushing	Industrial SU3	- Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		Ensure material transfers are under containment or extract ventilation [E66].
26	PROC 10 - Roller application or brushing	Industrial SU3	- Equipment cleaning and maintenance [CS39].			Limit the substance content in the product to 25% [OC18]. Drain or remove substance from equipment prior to break-in or maintenance [E81].; Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28]. Wear suitable gloves tested to
27	PROC 10 - Roller application or brushing	Industrial SU3	- Rolling, Brushing [CS51].	Equipment cleaning and maintenance [CS39].		Limit the substance content in the product to 5% [OC17]. Drain or remove substance from equipment prior to break-in or maintenance [E81].
31	PROC 13 -Treatment of articles by dipping and pouring	Industrial SU3	- Dipping, immersion and pouring [CS4].	elevated temperature [CS111]	occasional exposure @ temp < 150 °C = medium volatility	Limit the substance content in the product to 5% [OC17].
32	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]; elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	Ensure material transfers are under containment or extract ventilation [E66].
33	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [27].
34	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	Limit the substance content in the product to 25% [OC18]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28].
35	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial SU3	- Laboratory activities [CS36].			

Generic Exposure Scenario: Industrial Processes relevant for Cumene and Cumene containing products					Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.01								0.01
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	10							occasional exposure @ temp < 150 °C = medium volatility	10
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	25		30					occasional exposure @ temp < 150 °C = medium volatility	17.5
4	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	25				1-4 hours			occasional exposure @ temp < 150 °C = medium volatility	15
5	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]	with local exhaust ventilation [CS109]	20	90						occasional exposure @ temp < 150 °C = medium volatility	2
6	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		20		30					occasional exposure @ temp < 150 °C = medium volatility	14
7	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		20				1-4 hours			occasional exposure @ temp < 150 °C = medium volatility	12
8	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	50	90						occasional exposure @ temp < 150 °C = medium volatility	5
9	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	50		30		15 min-1 hour			occasional exposure @ temp < 150 °C = medium volatility	7
10	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	50		30	5-25%	1-4 hours			occasional exposure @ temp < 150 °C = medium volatility	12.6
11	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	50			1-5%				occasional exposure @ temp < 150 °C = medium volatility	10
12	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	50	90						occasional exposure @ temp < 150 °C = medium volatility	5
13	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	50		30		15 min-1 hour			occasional exposure @ temp < 150 °C = medium volatility	7



Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
14	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	50		30	5-25%	1-4 hours		occasional exposure @ temp < 150 °C = medium volatility	12.6
15	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	50	90					occasional exposure @ temp < 150 °C = medium volatility	5
16	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	50				15 min-1 hour		occasional exposure @ temp < 150 °C = medium volatility	10
17	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	50					half mask	occasional exposure @ temp < 150 °C = medium volatility	5
18	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	50			1-5%			occasional exposure @ temp < 150 °C = medium volatility	10
19	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	50	97					occasional exposure @ temp < 150 °C = medium volatility	1.5
20	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	50				15 min-1 hour		occasional exposure @ temp < 150 °C = medium volatility	10
21	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	50					half mask	occasional exposure @ temp < 150 °C = medium volatility	5
22	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	50	90					occasional exposure @ temp < 150 °C = medium volatility	5
23	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	50				15 min-1 hour		occasional exposure @ temp < 150 °C = medium volatility	10
24	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	50					half mask	occasional exposure @ temp < 150 °C = medium volatility	5
25	PROC 10 - Roller application or brushing	Industrial SU3	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		50	90					equipment prewashed/ rinsed automatically	5
26	PROC 10 - Roller application or brushing	Industrial SU3	Equipment cleaning and maintenance [CS39].			50		30	5-25%	1-4 hours		equipment prewashed/ rinsed automatically	12.6

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
27	PROC 10 - Roller application or brushing	Industrial SU3	Rolling, Brushing [CS51].	Equipment cleaning and maintenance [CS39].	50			1-5%				equipment prewashed/ rinsed automatically	10
31	PROC 13 -Treatment of articles by dipping and pouring	Industrial SU3	Dipping, immersion and pouring [CS4].	elevated temperature [CS111]	occasional exposure @ temp < 150 °C = medium volatility	50		1-5%				occasional exposure @ temp < 150 °C = medium volatility	10
32	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]; elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	50	90					occasional exposure @ temp < 150 °C = medium volatility	5
33	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	50		30	15 min-1 hour			occasional exposure @ temp < 150 °C = medium volatility	7
34	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	50		30	5-25%	1-4 hours		occasional exposure @ temp < 150 °C = medium volatility	12.6
35	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial SU3	Laboratory activities [CS36].		10								10

Generic Exposure Scenario:		Industrial Processes relevant for Cumene and Cumene containing products				Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs		TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;		0.34						0.34
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].		1.37						1.37
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].		0.34						0.34
4	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].		0.34						0.34
5	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]	with local exhaust ventilation [CS109]		6.86	0.1					0.69
6	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]			6.86			gloves			1.37
7	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]			6.86			gloves			1.37
8	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].		13.71	0.005					0.07
9	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].		13.71			gloves			2.74
10	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].		13.71		5-25%	gloves			1.65
11	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].		13.71		1-5%				2.74
12	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]		27.43	0.05					1.37
13	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]		27.43			gloves			5.49

Generic Exposure Scenario: Industrial Processes relevant for Cumene and Cumene containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
14	PROC 6 -Calendering operations	Industrial SU3	Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	27.43		5-25%	gloves		3.29
15	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	13.71	0.1				1.37
16	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	13.71			gloves		2.74
17	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	13.71			gloves		2.74
18	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	13.71		1-5%			2.74
19	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	6.86	0.1				0.69
20	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	6.86					6.86
21	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	6.86					6.86
22	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	6.86	0.1				0.69
23	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	6.86					6.86
24	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	6.86					6.86
25	PROC 10 - Roller application or brushing	Industrial SU3	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		27.43	0.05				1.37
26	PROC 10 - Roller application or brushing	Industrial SU3	Equipment cleaning and maintenance [CS39].			27.43		5-25%	gloves		3.29

Generic Exposure Scenario: Industrial Processes relevant for Cumene and Cumene containing products				Dermal Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs		TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
27	PROC 10 - Roller application or brushing	Industrial SU3	Rolling, Brushing [CS51].	Equipment cleaning and maintenance [CS39].		27.43		1-5%				5.49
31	PROC 13 -Treatment of articles by dipping and pouring	Industrial SU3	Dipping, immersion and pouring [CS4].	elevated temperature [CS111]	occasional exposure @ temp < 150 °C = medium volatility	13.71		1-5%				2.74
32	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]; elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	3.43	0.1					0.34
33	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	3.43						3.43
34	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	3.43		5-25%				2.06
35	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial SU3	Laboratory activities [CS36].			0.34						0.34

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Characterization			
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)	
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;		0.001	0.02	0.02
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.09	0.59
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.88	0.02	0.90
4	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.75	0.02	0.77
5	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	0.10	0.04	0.14
6	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		occasional exposure @ temp < 150 °C = medium volatility	0.70	0.09	0.79
7	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial SU3	Process sampling [CS2]. ; (open systems) [CS108]		occasional exposure @ temp < 150 °C = medium volatility	0.60	0.09	0.69
8	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.004	0.25
9	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.35	0.18	0.53
10	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.63	0.11	0.74
11	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.18	0.68

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Characterization			
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)	
12	PROC 6 -Calendering operations	Industrial SU3	- Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	0.25	0.09	0.34
13	PROC 6 -Calendering operations	Industrial SU3	- Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	0.35	0.36	0.71
14	PROC 6 -Calendering operations	Industrial SU3	- Calendering (including Banburys) [CS64]	with local exhaust ventilation [CS109]	occasional exposure @ temp < 58 °C = low volatility	0.63	0.21	0.84
15	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.09	0.34
16	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.18	0.68
17	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.18	0.43
18	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.18	0.68
19	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	0.08	0.04	0.12
20	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.45	0.95
21	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial SU3	- Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.45	0.70
22	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	- Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9]. ; with local exhaust ventilation [CS109]	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.04	0.29

Generic Exposure Scenario: <b>Industrial Processes relevant for Cumene and Cumene containing products</b>					Risk Characterization			
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)	
23	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	- Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.45	0.95
24	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial SU3	- Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	occasional exposure @ temp < 150 °C = medium volatility	0.25	0.45	0.70
25	PROC 10 - Roller application or brushing	Industrial SU3	- Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		0.25	0.09	0.34
26	PROC 10 - Roller application or brushing	Industrial SU3	- Equipment cleaning and maintenance [CS39].			0.63	0.21	0.84
27	PROC 10 - Roller application or brushing	Industrial SU3	- Rolling, Brushing [CS51].	Equipment cleaning and maintenance [CS39].		0.50	0.36	0.86
31	PROC 13 -Treatment of articles by dipping and pouring	Industrial SU3	- Dipping, immersion and pouring [CS4].	elevated temperature [CS111]	occasional exposure @ temp < 150 °C = medium volatility	0.50	0.18	0.68
32	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]; elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	0.25	0.02	0.27
33	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	0.35	0.22	0.57
34	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial SU3	- Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	elevated temperature [CS111]	occasional exposure @ temp < 58 °C = low volatility	0.63	0.13	0.76
35	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial SU3	- Laboratory activities [CS36].			0.50	0.02	0.52



**Identified Professional Generic Exposure Scenarios (GESs) of Cumene**

GES No.	Subsector	Main SU	Description	PROC	ERC	Cumene
EC No.						202-704-5
CAS No.						98-82-8
1	Use in laboratories	All Professional Uses (SU22)	Use of small quantities within laboratory settings, including material transfers and equipment cleaning	PROC10, PROC15	ERC8a ERCs are to be checked with the ECT tool	x
2	Uses in Coatings	All Professional Uses (SU22)	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, brush, spreader by hand or similar methods), and equipment cleaning, maintenance and associated laboratory activities.	PROC5, PROC8a, PROC10, PROC13	ERC8a, ERC8c, ERC8d, ERC8f ERCs are to be checked with the ECT tool	x up to 5%

<sup>2</sup> Polymer Examples: FRP, UV, VE

Please note also: PC's and AC's are only for consumer.  
For checking ERC's please use the respective environmental calculation tool (ECT) ECT Acetone or ECT Phenol or ECT Cumene or ECT AMS or ECT ACP

**Identified Professional PROCs**

PROC No.	Cumene
EC No.	202-704-5
CAS No.	98-82-8
PROC5	x up to 5%
PROC8a	x up to 5%
PROC10 (2 uses)	x
PROC13	x up to 5%
PROC15	x
<b>Sum</b>	<b>5</b>

## Worksheet 2. Worker Chemical Safety Assessment Template: Tables 1 and 2 - Worker Chemical Safety Assessment (CSA)

Substance specific information		Reference Values		
Substance	Cumene	DNEL worker - inhalation (long term)	20	ppm
CASnr	98-82-8	DNEL worker - inhalation (short term)		ppm
Substance volatility:	4.96 hPA	DNEL worker - dermal (long term)	15	mg/kg/day
TRA volatility range	medium			
physical property	liquid			
<b>Section 1</b>	<b>Exposure Scenario Title</b>			
<b>Exposure Scenario</b>	<b>Main sector of Use: SU22 = All Professional Uses</b>			
	All Professional Processes relevant for Cumene and Cumene containing products.			
Life Cycle Stage / Sector of Use	SU22 = All Professional Uses			
Applicable Use Descriptors (PROC or PC)	PROC5, PROC8a, PROC10, PROC13, PROC15			
Applicable Use Descriptors (ERC or SpERC)	ERCs and local conditions are to be checked with the Excel tool ECT Cumene			
<b>Default Operational Conditions</b>				
<b>Product characteristics</b>				
Acute Hazard	R phrases: 10 - Flammable, 37 -Irritating to respiratory system,65 - Harmful: may cause lung damage if swallowed			
<b>General measures</b>	<p style="color: red; margin: 0;"><b>Locate bulk storage outdoors [E2]</b></p> <p style="color: red; margin: 0;"><b>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]</b></p> <p style="color: red; margin: 0;"><b>Do not ingest. If swallowed then seek immediate medical assistance. [E14]</b></p>			
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].			
physical form of product	Liquid, vapour pressure 0.5 - 10 kPa [OC4].			
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]			
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;			

<b>Section 2</b>	<b>Operational conditions and risk management measures</b>
<b>Section 2.1</b>	<b>Control of environmental exposure</b>
Product characteristics	<a href="#">substance is a unique structure, ketone, readily biodegradable</a>
Amounts used	<a href="#">Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Cumene' to calculate your maximum tonnage/year</a>
Frequency and duration of use	<a href="#">Emission Days (days/year): 360d/y</a>
Other Operational Conditions of use affecting environmental exposure	<a href="#">Indoor/Outdoor use</a>
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	<a href="#">Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %</a>
Organisation measures to prevent/limit release from site	<a href="#">Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Cumene' to check your local conditions.</a>
Conditions and measures related to municipal sewage treatment plant	<a href="#">Please use the Excel-Tool 'ECT Cumene' to check your local conditions.</a>
Conditions and measures related to external treatment of waste for disposal	<a href="#">External treatment and disposal of waste should comply with applicable regulations</a>
Conditions and measures related to external recovery of waste	<a href="#">External treatment and disposal of waste should comply with applicable regulations</a>
Other environmental control measures additional to above	
<b>Section 2.2</b>	<b>Control of worker exposure</b>
	<a href="#">see chapter RMMs</a>
<b>Section 3</b>	<b>Exposure Estimation</b>
<b>3.1. Health</b>	<a href="#">GES Worker Chemical Safety Assessment (CSA) Template</a>
	<a href="http://cefic.org/templates/shwPublications.asp?HID=750">http://cefic.org/templates/shwPublications.asp?HID=750</a>
<b>3.2. Environment</b>	<a href="#">ECT Cumene</a>
	<a href="http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx">http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx</a>
<b>Section 4</b>	<b>Guidance to check compliance with the Exposure Scenario</b>
<b>4.1. Health</b>	<a href="#">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.</a>

Generic Exposure Scenario: <b>Professional Processes relevant for Cumene and Cumene containing products</b>					Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH	
1	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2].	Limit the substance content in the product to 5% [OC17].Avoid carrying out activities involving exposure for more than 4 hours [28].	
2	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Limit the substance content in the product to 5% [OC17].Avoid carrying out activities involving exposure for more than 4 hours [28].
3	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].			Limit the substance content in the product to 5% [OC17].Avoid carrying out activities involving exposure for more than 4 hours [28].
4	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].			Limit the substance content in the product to 1% [OC16].
5	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [28].
6	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	Limit the substance content in the product to 5% [OC17].Avoid carrying out activities involving exposure for more than 4 hours [28].
7	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].			

Generic Exposure Scenario: Professional Processes relevant for Cumene and Cumene containing products				Inhalation Exposure										
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs		TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2].		100.000			1-5%	1-4 hours				12
2	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	100			1-5%	1-4 hours				12
3	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].			100			1-5%	1-4 hours				12
4	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].			100			<1%					10
5	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		100	80			1-4 hours				12
6	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	100			1-5%	1-4 hours				12
7	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].			10								10

Generic Exposure Scenario: Professional Processes relevant for Cumene and Cumene containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
1	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2].	13.710		1-5%				2.74
2	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71		1-5%			occasional exposure @ temp < 150 °C = medium volatility	2.74
3	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].		27.43		1-5%				5.49
4	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].		27.43		<1%				2.74
5	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]	27.43	0.05					1.37
6	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71		1-5%			occasional exposure @ temp < 150 °C = medium volatility	2.74
7	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		0.34						0.34

Generic Exposure Scenario: Professional Processes relevant for Cumene and Cumene containing products					Risk Characterization			
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)	
1	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2].		0.60	0.18	0.78
2	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.60	0.18	0.78
3	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].			0.60	0.36	0.96
4	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].			0.50	0.18	0.68
5	PROC 10 - Roller application or brushing	Professional - SU22	Equipment cleaning and maintenance [CS39].	with local exhaust ventilation [CS109]		0.60	0.09	0.69
6	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	occasional exposure @ temp < 150 °C = medium volatility	0.60	0.18	0.78
7	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].			0.50	0.02	0.52