SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

ACETONE

Version 2.1 Print Date 29.11.2023

Revision date / valid from 28.11.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	ACETONE
Substance name	:	acetone
Index-No.	:	606-001-00-8
CAS-No.	:	67-64-1
EC-No.	:	200-662-2
EU REACH-Reg. No.	:	01-2119471330-49-xxxx

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against
Remarks	:	Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to all product grade

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag N.V. Nijverheidslaan 38 BE 8540 Deerlijk
Telephone	:	+32 (0)56 77 6944
Telefax	:	+32 (0)56 77 5711
E-mail address	:	info@brenntag.be
Responsible/issuing person	:	Master Data Administration
Company	:	Brenntag Nederland B.V. Donker Duyvisweg 44 NL 3316 BM Dordrecht
Telephone	:	+31 (0)78 65 44 944
Telefax	:	+31 (0)78 65 44 919
E-mail address	:	info@brenntag.nl
Responsible/issuing person	:	Master Data Administration

1.4. Emergency telephone number

Emergency telephone	:	Belgium: Antipoison Center - Brussels TEL: +32(0)70 245 245

number

Netherland: National Poisoning Information Center - Bilthoven
TEL: +31(0) 88 755 8000 (Only for the purpose of informing medical personnel in cases of acute intoxications)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Flammable liquids	Category 2	---	H225
Eye irritation	Category 2	---	H319
Specific target organ toxicity - single exposure	Category 3	Central nervous system	H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health : See section 11 for toxicological information.

Physical and chemical hazards : See section 9/10 for physicochemical information.

Potential environmental effects : See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements :

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements

Prevention : P210 Keep away from heat, hot surfaces, sparks,

			open flames and other ignition sources. No smoking.
		P243	Take action to prevent static discharges.
		P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	:	P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
		P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	:	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

Additional Labelling:

EUH066 Repeated exposure may cause skin dryness or cracking.

Hazardous components which must be listed on the label:

• acetone

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements

acetone					
Index-No.	:	606-001-00-8	>= 90 - <= 100	Flam. Liq.2	H225
CAS-No.	:	67-64-1		Eye Irrit.2	H319
EC-No.	:	200-662-2		STOT SE3	H336
EU REACH-Reg. No.	:	01-2119471330-49-xxxx			EUH066

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	: Remove from exposure, lie down. Take off all contaminated clothing immediately. If symptoms call a physician.
If inhaled	: Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position. Consult a physician after significant exposure.
In case of skin contact	: Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. If eye irritation persists, consult a specialist.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	: acidosis, Controle the alkaline reserve, Shortness of breath, Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. See Section 11 for more detailed information on health effects and symptoms.
Effects	: Aspiration hazard if swallowed - can enter lungs and cause damage. Aspiration may cause pulmonary oedema and pneumonitis.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment	: Treat symptomatically.Later control for pneumonia and lung

oedema.In case of shortness of breath, give oxygen.Artificial respiration and/or oxygen may be necessary.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground. Vapours may form explosive mixtures with air. Flash back possible over considerable distance.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2)

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Further advice	:	Cool closed containers exposed to fire with water spray.Heating will cause a pressure rise - with risk of bursting.Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Keep away from heat and sources of ignition. Keep away unprotected persons. Use personal protective equipment. Provide adequate ventilation. Avoid contact with skin and eyes. Do not breathe vapours or spray mist.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to

local / national regulations (see section 13).

Further information : Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling : Keep container tightly closed. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.

Hygiene measures : Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep in an area equipped with solvent resistant flooring. Suitable materials for containers: Mild steel; Iron; Unsuitable materials for containers: plastic materials

Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking. The vapour may be invisible, heavier than air and spread along ground. Vapours may form explosive mixtures with air. Take measures to prevent the build up of electrostatic charge. Use only in an area containing explosion proof equipment.

Further information on storage conditions : Keep tightly closed in a dry and cool place. Keep away from direct sunlight. Keep in a well-ventilated place.

Advice on common storage : Incompatible with oxidizing agents. Do not store together with oxidizing and self-igniting products. Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	acetone	CAS-No. 67-64-1

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL
Workers, Long-term - systemic effects, Skin contact : 186 mg/kg bw/day

DNEL
Workers, Long-term - systemic effects, Inhalation : 1210 mg/m3

DNEL
Workers, Acute - local effects, Inhalation : 2420 mg/m3

DNEL
Consumers, Long-term - systemic effects, Skin contact : 62 mg/kg bw/day

DNEL
Consumers, Long-term - systemic effects, Inhalation : 200 mg/m3

DNEL
Consumers, Long-term - systemic effects, Ingestion : 62 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	10,6 mg/l
Marine water	:	1,06 mg/l
Intermittent releases	:	21 mg/l
Sewage treatment plant (STP)	:	100 mg/l
Fresh water sediment	:	30,4 mg/kg, 30,4 mg/kg d.w.
Marine sediment	:	3,04 mg/kg, 3,04 mg/kg d.w.
Soil	:	29,5 mg/kg

Other Occupational Exposure Limit Values

Belgium. OELs. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1, as amended, Short Term Exposure Limit (STEL):
492 ppm, 1.187 mg/m3, (15 minutes)

Belgium. OELs. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1, as amended, Time Weighted Average (TWA):
246 ppm, 594 mg/m3

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
500 ppm, 1.210 mg/m3
Indicative

Netherlands. OELs (binding), as amended, Time Weighted Average (TWA):
500 ppm, 1.210 mg/m3

Netherlands. OELs (binding), as amended, Short Term Exposure Limit (STEL):
1.000 ppm, 2.420 mg/m3, (15 minutes)

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
500 ppm, 1.210 mg/m3
Indicative

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	In case of insufficient ventilation, wear suitable respiratory equipment. Respiratory protection complying with EN 141. Recommended Filter type:AX In case of intensive or longer exposure use self-contained breathing apparatus.

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	butyl-rubber
Break through time	:	>= 4 h
Glove thickness	:	0,5 mm

Eye protection

Advice	:	Goggles giving complete protection to the eyes

Skin and body protection

Advice	:	Solvent resistant protective clothing

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	:	liquid
Physical state	:	liquid
Colour	:	colourless
Odour	:	sweet, aromatic
Odour Threshold	:	13 ppm
Melting point/range	:	-94,7 °C
Boiling point/boiling range	:	56,05 °C
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	14,3 %(V)
Lower explosion limit / Lower flammability limit	:	2,5 %(V)
Flash point	:	-17 °C Method: closed cup
Auto-ignition temperature	:	465 °C
Decomposition temperature	:	235 °C
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	5 - 6 (20 °C) Concentration: 395 g/l
Viscosity		
Viscosity, dynamic	:	0,32 mPa.s (20 °C)
Viscosity, kinematic	:	No data available

Flow time	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Dissolution Rate	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -0,24 (20 °C)
Dispersion Stability	:	No data available
Vapour pressure	:	240 hPa (20 °C)
		800 hPa (50 °C)
Relative density	:	No data available
Density	:	0,79 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	2,1 (20 °C)
Particle characteristics		
No data available		

9.2 Other information

Explosives	:	Formation of explosive air/vapour mixtures is possible.
Flammability (liquids)	:	Highly flammable liquid and vapour.
Evaporation rate	:	2,0 (ether = 1)
Molecular weight	:	58,09 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if used as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air. Possible

formation of peroxide.

10.4. Conditions to avoid

Conditions to avoid	:	Heat, flames and sparks.
Thermal decomposition	:	235 °C

10.5. Incompatible materials

Materials to avoid	:	Strong reducing agents, Oxidizing agents, Halogenated compounds, Alkali metals, Ethanolamine, Hydrogen peroxide, Ammonium nitrate, Organic peroxides, potassium permanganate, Nitric acid, Alkali hydroxide

10.6. Hazardous decomposition products

Hazardous decomposition products	:	Under fire conditions: Carbon oxides

SECTION 11: Toxicological information

11.1. Information on the hazard classes within the meaning of Regulation (EC) No. 1272/2008

Component:		acetone	CAS-No. 67-64-1
Acute toxicity			
Oral			
LD50	:	5800 mg/kg (Rat) (OECD Test Guideline 401)Cause pain in mouth and throat, nausea, vomiting, dizziness, headache and risk of unconsciousness.	
Inhalation			
LC50	:	ca. 76 mg/l (Rat; 4 h) May cause pain in nose and throat, nausea, dizziness, headache, deteriorate reactivity and at high concentration unconsciousness.	
Dermal			
LD50	:	> 15800 mg/kg (Rat)	
Irritation			
Skin			
Result	:	No skin irritation (Guinea pig) Repeated exposure may cause skin dryness or cracking.	
Eyes			

Result	:	Irritating to eyes. (Rabbit) (OECD Test Guideline 405)May cause corneal damage.

Sensitisation

Result	:	not sensitizing (Guinea pig) (OECD Test Guideline 406)

CMR effects

Carcinogenicity

(negative, Mouse, female)(Dermal)(No guideline followed)

CMR Properties

Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects. In vivo tests did not show mutagenic effects
Teratogenicity	:	Causes developmental effects in animals at high doses.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Genotoxicity in vitro

Result	:	negative (Chromosome aberration test in vitro; CHO (Chinese Hamster Ovary) cells; with and without metabolic activation) (OECD Test Guideline 473) negative (In vitro gene mutation study in mammalian cells; Mouse Lymphoma Cells; no) (OECD Test Guideline 476) negative (Bacterial Reverse Mutation Test; Salmonella typhimurium; with and without metabolic activation) (OECD Test Guideline 471)

Genotoxicity in vivo

Result	:	negative (In vivo micronucleus test; Mouse, male and female)

Teratogenicity

(Prenatal Developmental Toxicity Study; Rat)(Inhalation)(OECD Test Guideline 414)negative

Specific Target Organ Toxicity

Single exposure

Remarks	:	Target Organs: Central nervous systemMay cause drowsiness or dizziness.

Repeated exposure		
Remarks	:	Based on available data, the classification criteria are not met.

Other toxic properties		
Repeated dose toxicity		
NOAEL	:	900 mg/kg bw/day (Rat)(Oral; 90-day)
NOAEC	:	22500 mg/m³ (Rat)(Inhalation; 8 Weeks)

Aspiration hazard
Based on available data, the classification criteria are not met.,

Further information		
Experience with human exposure	:	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Chronic exposure may cause dermatitis. Chronic inhalation causes tiredness, headache and rhinitis.,

11.2. Information on other hazards

Data for the product		
Endocrine disrupting properties		
Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1. Toxicity

Component:	acetone	CAS-No. 67-64-1
Acute toxicity		

Fish		
LC50	:	5.540 mg/l (Oncorhynchus mykiss; 96 h)
LC50		11.000 mg/l (Alburnus alburnus; 96 h)

Toxicity to daphnia and other aquatic invertebrates		
LC50	:	8.800 mg/l (Daphnia pulex (Water flea); 48 h)

algae		
NOEC	:	430 mg/l (Prorocentrum minimum; 96 h)

Bacteria		
EC12	:	1000 mg/l (activated sludge; 0,5 h) (static test; End point: Respiration inhibition; OECD Test Guideline 209)

Chronic toxicity		
Aquatic invertebrates		
NOEC		2212 mg/l (Daphnia pulex (Water flea); 28 d) (End point: Reproduction)

12.2. Persistence and degradability

Component:	acetone	CAS-No. 67-64-1
Persistence and degradability		
Persistence		
Result	:	decomposition by hydrolysis.
Biodegradability		
Result	:	91 % (Exposure Time: 28 d)(OECD Test Guideline 301B)Readily biodegradable.

12.3. Bioaccumulative potential

Component:	acetone	CAS-No. 67-64-1

Bioaccumulation		
Result	:	log Kow -0,24
	:	BCF: 3; (BCFWIN-software)Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	acetone	CAS-No. 67-64-1
Mobility		
Air	:	The product evaporates readily.
Water	:	The product is water soluble.
Soil	:	Mobile in soils

12.5. Results of PBT and vPvB assessment

Data for the product		
Results of PBT and vPvB assessment		
Result	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Component:	acetone	CAS-No. 67-64-1
Results of PBT and vPvB assessment		
Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Data for the product		
Endocrine disrupting potential	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

Data for the product
Additional ecological information

Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Component:	acetone	CAS-No. 67-64-1

Biochemical Oxygen Demand (BOD)

Result	:	1760 mg/g (Incubation time: 5 d)

Chemical Oxygen Demand (COD)

Result	:	2100 mg/g

Additional ecological information

Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services. This product shall be disposed of or recovered in compliance with Directive 2008/98/EC on waste as lastly amended.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations. Do not burn, or use a cutting torch on, the empty drum. Risk of explosion.
European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number or ID number

1090

14.2. UN proper shipping name

ADR : ACETONE
RID : ACETONE
IMDG : ACETONE

14.3. Transport hazard class(es)

ADR-Class (Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	:	3 3; F1; 33; (D/E)
RID-Class (Labels; Classification Code; Hazard Identification Number)	:	3 3; F1; 33
IMDG-Class (Labels; EmS)	:	3 3; F-E, S-D

14.4. Packaging group

ADR	:	II
RID	:	II
IMDG	:	II

14.5. Environmental hazards

Environmentally hazardous according to ADR	:	no
Environmentally hazardous according to RID	:	no
Marine Pollutant according to IMDG-Code	:	no

14.6. Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Component:	**acetone**	**CAS-No. 67-64-1**

EU. Regulation 273/2004, Drug Precursors, Category 3	:	Scheduled substance Combined Nomenclature (CN) code: , 2914 11 00
EU. Restricted (Annex I) & Reportable (Annex II) Explosives Precursors, Regulation 2019/1148/EU on Explosives Precursors	:	; ANNEX II: REPORTABLE EXPLOSIVES PRECURSORS: List of substances on their own or in mixtures or in substances for which suspicious transactions and significant disappearances and thefts are to be reported within 24 hours.

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I	:	Qualifying quantity for the application of Lower-tier requirements: 5.000 tonnes; Part 1: Categories of dangerous substances; Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa. Qualifying quantity for the application of Upper-tier requirements: 50.000 tonnes; Part 1: Categories of dangerous substances; Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa.

Notification status acetone:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	200-662-2
ENCS (JP)	YES	(2)-542
IECSC	YES	
INSQ	YES	
ISHL (JP)	YES	(2)-542
JEX (JP)	YES	(2)-542
KECI (KR)	YES	KE-29367
NZIOC	YES	HSR001070
ONT INV	YES	
PICCS (PH)	YES	
TCSI	YES	
TH INV	YES	55-1-05314
TH INV	YES	2914.11
TSCA	YES	
VN INVL	YES	

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Full text of the Notes referred to under section 3.

Abbreviations and Acronyms

AU AIICL	Australia. Industrial Chemicals Act (AIIC) List
BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
DSL	Canada. Environmental Protection Act, Domestic Substances List
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS (JP)	Japan. Kashin-Hou Law List
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IECSC	China. Inventory of Existing Chemical Substances
INSQ	Mexico. National Inventory of Chemical Substances
ISHL (JP)	Japan. Inventory of Industrial Safety & Health
KECI (KR)	Korea. Existing Chemicals Inventory
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NDSL	Canada. Environmental Protection Act. Non-Domestic Substances List
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NZIOC	New Zealand. Inventory of Chemicals
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
ONT INV	Canada. Ontario Inventory List
PBT	persistent, bioaccumulative and toxic
PHARM (JP)	Japan. Pharmacopoeia Listing
PICCS (PH)	Philippines. Inventory of Chemicals and Chemical Substances
PNEC	predicted no-effect concentration
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number

UK REACH Auth. No.:	UK REACH Authorisation Number
UK REACH AuthAppC. No.	UK REACH Authorisation Application Consultation Number
UK REACH-Reg.No	UK REACH Registration Number
STOT	specific target organ toxicity
SVHC	substance of very high concern
TCSI	Taiwan. Existing Chemicals Inventory
TH INV	Thailand. Existing Chemicals Inventory from FDA
TSCA	US. Toxic Substances Control Act
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
VN INVL	Vietnam. National Chemical Inventory
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15	1, 2, 4, 6a	NA	ES7668
2	Distribution of substance	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15	1, 2, 4, 6a	NA	ES7846
3	Formulation & (re)packing of substances and mixtures	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15	1, 2, 4, 6a	NA	ES13324
4	Rubber production and processing	3	NA	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14	6d	NA	ES7680
5	Polymer production	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15	6d	NA	ES7682
6	Polymer production	22	NA	NA	1, 2, 8a, 8b, 9, 14	8a, 8c, 8d, 8f	NA	ES7741
7	Polymer processing	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15	6d	NA	ES7684
8	Polymer processing	22	NA	NA	1, 2, 8a, 8b, 9, 14	8a, 8c, 8d, 8f	NA	ES7743
9	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15, 19	4	NA	ES7672
10	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 19	8a, 8c, 8d, 8f	NA	ES7737
11	Uses in coatings	21	NA	1, 4, 9a, 9b, 9c, 15, 24, 31	NA	8a, 8c, 8d, 8f	NA	ES8830
12	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 19	4	NA	ES7686
13	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11,	8a, 8d	NA	ES7745

					13, 19			
14	Use in Cleaning Agents	21	NA	3, 4, 9a, 9b, 9c, 24, 35, 38	NA	8a, 8d	NA	ES8831
15	Use as binders and release agents	3	NA	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13	5	NA	ES7678
16	Use as binders and release agents	22	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 11	8a, 8b, 8c, 8d, 8e, 8f	NA	ES7739
17	Use in agrochemicals	22	NA	NA	1, 2, 4, 8a, 8b, 11, 13, 19	8a, 8d	NA	ES7749
18	Use in laboratories	3	NA	NA	10, 15, 19	4	NA	ES7670
19	Use in laboratories	22	NA	NA	10, 15, 19	8a	NA	ES7735
20	Use as blowing agents	3	NA	NA	1, 2, 3, 8b, 9, 12	4, 10a	NA	ES7690
21	Use in de-icing and anti-icing applications	22	NA	NA	1, 2, 8b, 11, 19	8d	NA	ES7751
22	Use in de-icing and anti-icing applications	21	NA	4	NA	8d	NA	ES8832
23	Use in Oil and Gas field drilling and production operations	3	NA	NA	1, 2, 3, 4, 8a, 8b	4	NA	ES7688
24	Use in Oil and Gas field drilling and production operations	22	NA	NA	1, 2, 3, 4, 8a, 8b	8d	NA	ES7747
25	Explosives manufacture & use	22	NA	NA	1, 3, 5, 8a, 8b	8d	NA	ES7753
26	Use as processing aid	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15	1, 2, 4, 6a	NA	ES7845

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related	Contain and dispose of waste in accordance with environmental legislation and	

to external treatment of waste for disposal	according to local regulations.
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6, PROC8a, PROC10	---	Inhalation	250ppm	0,50

PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: Distribution of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related	Contain and dispose of waste in accordance with environmental legislation and	

to external treatment of waste for disposal	according to local regulations.
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6, PROC8a, PROC10	---	Inhalation	250ppm	0,50

PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	

Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6,	---	Inhalation	250ppm	0,50

PROC8a, PROC10				
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: Rubber production and processing	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation
Environmental Release Categories	ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

2.1 Contributing scenario controlling environmental exposure for: ERC6a, ERC6b, ERC6c, ERC6d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related	If recycling is not practicable, dispose of in compliance with local regulations.	

to external recovery of waste		

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6,	---	Inhalation	250ppm	0,50

PROC8a, PROC10, PROC13				
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC7	with local exhaust ventilation, (95% efficiency)	Inhalation	25ppm	0,05
PROC7	---	Dermal	2,14mg/kg/day	0,01
PROC7	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC7	---	Dermal	42,86mg/kg/day	0,23
PROC7	half mask	Inhalation	50ppm	0,10
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC13	---	Dermal	13,71mg/kg/day	0,074
PROC14	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 5: Polymer production	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

2.1 Contributing scenario controlling environmental exposure for: ERC6d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related	If recycling is not practicable, dispose of in compliance with local regulations.	

to external recovery of waste		

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6, PROC8a, PROC10, PROC13	---	Inhalation	250ppm	0,50
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07

PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC13	---	Dermal	13,71mg/kg/day	0,074
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Polymer production	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC8a)	
	Ensure material transfers are under containment or extract ventilation. or Avoid carrying out operation for more than 4 hours.(PROC14)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC14	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC8a, PROC14	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a	---	Dermal	13,71mg/kg/day	0,07

PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC8b, PROC9	---	Inhalation	250ppm	0,50
PROC8b, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC14	during 1 - 4 hours	Inhalation	300ppm	0,002

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 7: Polymer processing	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

2.1 Contributing scenario controlling environmental exposure for: ERC6d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related	If recycling is not practicable, dispose of in compliance with local regulations.	

to external recovery of waste		

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC5, PROC6,	---	Inhalation	250ppm	0,50

PROC8a, PROC10, PROC13				
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC13	---	Dermal	13,71mg/kg/day	0,074
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 8: Polymer processing	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC8a)	
	Ensure material transfers are under containment or extract ventilation. or Avoid carrying out operation for more than 4 hours.(PROC14)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC14	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	20ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC8a, PROC14	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a	---	Dermal	13,71mg/kg/day	0,07

PROC8a, PROC14	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC8b, PROC9	---	Inhalation	250ppm	0,50
PROC8b, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC14	---	Dermal	3,43mg/kg/day	0,02

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 9: Uses in coatings	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	Charcoal adsorbers, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Organizational measures to prevent/limit release from the site		
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC8a,	---	Inhalation	250ppm	0,50

PROC10, PROC13, PROC19				
PROC5, PROC8a, PROC13	---	Dermal	13,71mg/kg/day	0,07
PROC7	with local exhaust ventilation, (95% efficiency)	Inhalation	25ppm	0,05
PROC7	---	Dermal	2,14mg/kg/day	0,01
PROC7	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC7	---	Dermal	42,86mg/kg/day	0,23
PROC7	half mask	Inhalation	50ppm	0,10
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC15	---	Dermal	0,34mg/kg/day	0,00
PROC19	with gloves	Dermal	28,29mg/kg/day	0,15

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 10: Uses in coatings	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC6d, ERC8f		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	

Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC5, PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC5, PROC8a)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %.(PROC10)	
	or Avoid carrying out operation for more than 4 hours.(PROC10)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC11)	
	or Avoid carrying out operation for more than 1 hour.(PROC11)	
	Avoid carrying out operation for more than 1 hour.(PROC19)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Limit the substance content in the mixture to 25 %. Wear suitable gloves tested to EN374.(PROC19)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3, PROC15	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3	---	Inhalation	100ppm	0,20
PROC4, PROC8b, PROC9, PROC13	---	Inhalation	250ppm	0,50
PROC4, PROC8b, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5	---	Dermal	0,07mg/kg/day	0,00
PROC5, PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC5, PROC8a, PROC13	---	Dermal	13,71mg/kg/day	0,07
PROC5, PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC10	---	Dermal	1,37mg/kg/day	0,007
PROC11	with local exhaust ventilation, 80% efficiency	Inhalation	200ppm	0,40
PROC11	---	Dermal	2,14mg/kg/day	0,01
PROC11	during 1 - 4 hours, Concentration of substance in product: 5% - 25%, Outdoor use., 30% efficiency	Inhalation	252ppm	0,50
PROC11	Concentration of	Dermal	64,28mg/kg/day	0,35

	substance in product: 5% - 25%			
PROC11	---	Dermal	107,14mg/kg/day	0,58
PROC19	Concentration of substance in product: 5% - 25%, with gloves	Dermal	16,97mg/kg/day	0,09
PROC5, PROC8a, PROC10	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC11	half mask	Inhalation	100ppm	0,20
PROC19	Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 11: Uses in coatings		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC4: Anti-freeze and de-icing products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC15: Non-metal-surface treatment products PC24: Lubricants, greases, release products PC31: Polishes and wax blends	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa

Amount used	Amount used per event	9 g
Frequency and duration of use	Exposure duration	< 4 h
	Frequency of use	< 365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	6390 g
Frequency and duration of use	Exposure duration	6 h
	Frequency of use	1 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Exposure duration	4 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²

Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.5 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Exposure duration	0,02 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.6 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.7 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of	liquid

	use)	
	Vapour pressure	240 hPa
Amount used	Amount used per event	4 g
Frequency and duration of use	Exposure duration	0,25 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 214,4 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.8 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	2760 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.9 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint, PC15: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 27,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	744 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	6 days/year

	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 482,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.10 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can, PC15: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	215 g
Frequency and duration of use	Exposure duration	0,33 h
	Frequency of use	2 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.11 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover), PC15: Removers (paint-, glue-, wall paper-, sealant remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	491 g
Frequency and duration of use	Exposure duration	2 h
	Frequency of use	3 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

2.12 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	85 g
Frequency and duration of use	Exposure duration	4 h
	Frequency of use	12 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.13 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	13800 g
Frequency and duration of use	Exposure duration	2 h
	Frequency of use	12 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.14 Contributing scenario controlling consumer exposure for: PC9c: Finger paints		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid

	Vapour pressure	240 hPa
Amount used	Amount used per event	1,35 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using at a product concentration greater than 5%
2.15 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.16 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	142 g
Frequency and duration of use	Exposure duration	1,23 h

	Frequency of use	29 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

3. Exposure estimation and reference to its source

Environment

No information available.

Consumers

No exposure assessment presented for human health.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Risk characterization ratios (RCRs) were calculated by comparing the predicted exposure levels with the corresponding DNELs (derived no effect levels) (RCR = exposure level/DNEL)

1. Short title of Exposure Scenario 12: Use in Cleaning Agents	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC8a, PROC10, PROC13,	---	Inhalation	250ppm	0,50

PROC19				
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC7	with local exhaust ventilation, (95% efficiency)	Inhalation	25ppm	0,05
PROC7	---	Dermal	2,14mg/kg/day	0,01
PROC7	---	Inhalation	350ppm	0,70
PROC7	Outdoor use., 30% efficiency	Dermal	42,86mg/kg/day	0,23
PROC7	half mask	Inhalation	50ppm	0,10
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC13	---	Dermal	13,71mg/kg/day	0,074
PROC19	with gloves	Dermal	28,29mg/kg/day	0,15

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 13: Use in Cleaning Agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,		

PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC5, PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC5, PROC8a)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %.(PROC10)	
	or Avoid carrying out operation for more than 4 hours.(PROC10)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC11)	
	or Avoid carrying out operation for more than 1 hour.(PROC11)	
	Avoid carrying out operation for more than 1 hour.(PROC19)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Limit the substance content in the mixture to 25 %. Wear suitable gloves tested to EN374.(PROC19)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3	---	Inhalation	100ppm	0,20
PROC4, PROC8b, PROC9, PROC13	---	Inhalation	250ppm	0,50
PROC4, PROC8b, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5	---	Dermal	0,07mg/kg/day	0,00
PROC8b	---	Inhalation	350ppm	0,70
PROC5, PROC8a, PROC13	---	Dermal	13,71mg/kg/day	0,07
PROC5, PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC5, PROC8a, PROC10	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC5	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC10	---	Dermal	1,37mg/kg/day	0,007
PROC10	Concentration of substance in product: 5% - 25%	Dermal	16,46mg/kg/day	0,09
PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC11	during 15 mins - 1 hour, with local exhaust ventilation, 80% efficiency	Inhalation	200ppm	0,40
PROC11	---	Dermal	2,14mg/kg/day	0,01
PROC11	during 1 - 4 hours,	Inhalation	252ppm	0,50

	Concentration of substance in product: 5% - 25%, Outdoor use., 30% efficiency			
PROC11	Concentration of substance in product: 5% - 25%	Dermal	64,28mg/kg/day	0,35
PROC11	---	Dermal	107,14mg/kg/day	0,58
PROC11	---	Inhalation	300ppm	0,60
PROC11	half mask	Inhalation	100ppm	0,20
PROC19	Concentration of substance in product: 5% - 25%, with gloves	Dermal	16,97mg/kg/day	0,09
PROC19	Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 14: Use in Cleaning Agents		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC3: Air care products PC4: Anti-freeze and de-icing products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products) PC38: Welding and soldering products (with flux coatings or flux cores), flux products	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling consumer exposure for: PC3: Aircare, instant action (aerosol sprays)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol

Amount used	Amount used per event	0,1 g
Frequency and duration of use	Exposure duration	0,25 h
	Frequency of use	365 days/year
	Frequency of use	4 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.4 Contributing scenario controlling consumer exposure for: PC3: Aircare, continuous action (solid & liquid)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
	Physical Form (at time of use)	solid
Amount used	Amount used per event	0,48 g
Frequency and duration of use	Exposure duration	8 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,70 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.5 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers product concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Exposure duration	0,02 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day

Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.6 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.7 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	4 g
Frequency and duration of use	Exposure duration	0,25 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 214,4 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.8 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of	liquid

	use)	
	Vapour pressure	240 hPa
Amount used	Amount used per event	2760 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

2.9 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 27,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	744 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

2.10 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	215 g
Frequency and duration of use	Exposure duration	0,33 min
	Frequency of use	2 days/year

	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.11 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	491 g
Frequency and duration of use	Exposure duration	2 h
	Frequency of use	3 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.12 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	85 g
Frequency and duration of use	Exposure duration	4 h
	Frequency of use	12 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

2.13 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	13800 g
Frequency and duration of use	Exposure duration	2 h
	Frequency of use	12 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.14 Contributing scenario controlling consumer exposure for: PC9b: Modelling clay		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers product concentrations up to 1%
	Physical Form (at time of use)	solid
Amount used	Amount used per event	1 g
Frequency and duration of use	Exposure duration	8 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.15 Contributing scenario controlling consumer exposure for: PC9c: Finger paints		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa

Amount used	Amount used per event	1,35 g
Frequency and duration of use	Exposure duration	8 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using at a product concentration greater than 5%
2.16 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	2200 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.17 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	34 g
Frequency and duration of use	Exposure duration	8 h
	Frequency of use	10 days/year

	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.18 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.19 Contributing scenario controlling consumer exposure for: PC35: Laundry and dish washing products		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	15 g
Frequency and duration of use	Exposure duration	0,5 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.20 Contributing scenario controlling consumer exposure for: PC35: Cleaners, liquids (all		

purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	27 g
Frequency and duration of use	Exposure duration	0,33 h
	Frequency of use	128 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
2.21 Contributing scenario controlling consumer exposure for: PC38		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	12 g
Frequency and duration of use	Exposure duration	1 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	

3. Exposure estimation and reference to its source

Environment

No information available.

Consumers

No exposure assessment presented for human health.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Risk characterization ratios (RCRs) were calculated by comparing the predicted exposure levels with the corresponding DNELs (derived no effect levels) (RCR = exposure level/DNEL)

1. Short title of Exposure Scenario 15: Use as binders and release agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC5: Industrial use resulting in inclusion into or onto a matrix	
2.1 Contributing scenario controlling environmental exposure for: ERC5		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,		

PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6, PROC8a	---	Inhalation	250ppm	0,50
PROC5	---	Dermal	13,71mg/kg/day	0,07

PROC6	---	Dermal	27,43mg/kg/day	0,15
PROC7	with local exhaust ventilation, (95% efficiency)	Inhalation	25ppm	0,05
PROC7	---	Dermal	2,14mg/kg/day	0,01
PROC7	---	Inhalation	350ppm	0,70
PROC7	---	Dermal	42,86mg/kg/day	0,23
PROC7	half mask	Inhalation	50ppm	0,10
PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC10	---	Inhalation	250ppm	0,50
PROC10	---	Dermal	27,34mg/kg/day	0,15
PROC13	---	Inhalation	250ppm	0,50
PROC13	---	Dermal	13,71mg/kg/day	0,074

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 16: Use as binders and release agents	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f

Substance is a unique structure, Readily biodegradable.

Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	

disposal		
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC5, PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC5, PROC8a)	
	Ensure operation is undertaken outdoors. or Avoid carrying out operation for more than 4 hours.(PROC6)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %.(PROC10)	
	or Avoid carrying out operation for more than 4 hours.(PROC10)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC11)	
	or Avoid carrying out operation for more than 1 hour.(PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC8b	---	Inhalation	100ppm	0,20
PROC4	---	Inhalation	250ppm	0,50
PROC4	---	Dermal	6,86mg/kg/day	0,04
PROC5	---	Dermal	0,07mg/kg/day	0,00
PROC5, PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC5, PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC6	Outdoor use., 30% efficiency	Inhalation	420ppm	0,84
PROC6	---	Dermal	27,43mg/kg/day	0,15
PROC6	during 1 - 4 hours	Inhalation	360ppm	0,72
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	---	Dermal	13,71mg/kg/day	0,50
PROC8b	---	Inhalation	250ppm	0,50
PROC8b	---	Dermal	6,86mg/kg/day	0,04
PROC9	---	Inhalation	250ppm	0,50
PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC11	half mask	Inhalation	100ppm	0,20
PROC10	---	Dermal	1,37mg/kg/day	0,007
PROC10	during 1 - 4 hours, Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60
PROC10	Concentration of	Dermal	16,46mg/kg/day	0,09

	substance in product: 5% - 25%			
PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC11	during 15 mins - 1 hour, with local exhaust ventilation, 80% efficiency	Inhalation	200ppm	0,40
PROC11	---	Dermal	2,14mg/kg/day	0,01
PROC11	during 1 - 4 hours, Concentration of substance in product: 5% - 25%, Outdoor use., 30% efficiency	Inhalation	252ppm	0,50
PROC11	Concentration of substance in product: 5% - 25%	Dermal	64,28mg/kg/day	0,35
PROC11	---	Dermal	107,14mg/kg/day	0,58
PROC5, PROC10	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 17: Use in agrochemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
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.	
Organizational measures to prevent/limit release from the site		
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of	liquid

	use)	
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC8a)	
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC11)	
	or Avoid carrying out operation for more than 1 hour.(PROC11)	
	Avoid carrying out operation for more than 1 hour.(PROC19)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Limit the substance content in the mixture to 25 %. Wear suitable gloves tested to EN374.(PROC19)	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10

PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC4, PROC8b, PROC13	---	Inhalation	250ppm	0,50
PROC4, PROC8b	---	Dermal	6,86mg/kg/day	0,04
PROC8a	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a, PROC13	---	Dermal	13,71mg/kg/day	0,07
PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC11	during 15 mins - 1 hour, with local exhaust ventilation, 80% efficiency	Inhalation	200ppm	0,40
PROC11	---	Dermal	2,14mg/kg/day	0,01
PROC11	during 1 - 4 hours, Concentration of substance in product: 5% - 25%, Outdoor use., 30% efficiency	Inhalation	252ppm	0,50
PROC11	Concentration of substance in product: 5% - 25%	Dermal	64,28mg/kg/day	0,35
PROC11	---	Dermal	107,14mg/kg/day	0,58
PROC11	half mask	Inhalation	100ppm	0,20
PROC19	Concentration of substance in product: 5% - 25%	Dermal	16,97mg/kg/day	0,09
PROC19	Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:

ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 18: Use in laboratories		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
Conditions and measures related	Use suitable eye protection.	

to personal protection, hygiene and health evaluation	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10, PROC19	---	Inhalation	250ppm	0,50
PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC15	---	Inhalation	50ppm	0,10
PROC15	---	Dermal	0,34mg/kg/day	0,00
PROC19	with gloves	Dermal	28,29mg/kg/day	0,15

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 19: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Organizational measures to prevent/limit release from the site		
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Ensure material transfers are under containment or extract ventilation.	

	or Limit the substance content in the mixture to 25 %.(PROC10)
	or Avoid carrying out operation for more than 4 hours.(PROC10)
	Avoid carrying out operation for more than 1 hour.(PROC19)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	If above technical/organisational control measures are not feasible, then adopt following PPE: Limit the substance content in the mixture to 25 %. Wear suitable gloves tested to EN374.(PROC19)

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC10	---	Dermal	1,37mg/kg/day	0,007
PROC15	---	Inhalation	50ppm	0,10
PROC15	---	Dermal	0,34mg/kg/day	0,002
PROC19	Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60
PROC19	Concentration of substance in product: 5% - 25%, with gloves	Dermal	16,97mg/kg/day	0,09

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health

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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 20: Use as blowing agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC12: use of blowing agents in manufacture of foam	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC10a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC12	---	Inhalation	100ppm	0,20
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC12	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health

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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 21: Use in de-icing and anti-icing applications		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC11: Non industrial spraying PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8b, PROC11, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and	Locate bulk storage outdoors.	

measures to control dispersion from source towards the worker	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.
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2)
	Ensure material transfers are under containment or extract ventilation. or Limit the substance content in the mixture to 25 %. Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC11)
	or Avoid carrying out operation for more than 1 hour.(PROC11)
	Avoid carrying out operation for more than 1 hour.(PROC19)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	If above technical/organisational control measures are not feasible, then adopt following PPE: Limit the substance content in the mixture to 25 %. Wear suitable gloves tested to EN374.(PROC19)

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,10
PROC8b	---	Inhalation	250ppm	0,50
PROC8b	---	Dermal	6,86mg/kg/day	0,04
PROC11	during 15 mins - 1 hour, with local exhaust ventilation, 80% efficiency	Inhalation	200ppm	0,40
PROC11	---	Dermal	2,14mg/kg/day	0,01

PROC11	during 1 - 4 hours, Concentration of substance in product: 5% - 25%, Outdoor use., 30% efficiency	Inhalation	252ppm	0,50
PROC11	Concentration of substance in product: 5% - 25%	Dermal	64,28mg/kg/day	0,35
PROC11	---	Dermal	107,14mg/kg/day	0,58
PROC11	half mask	Inhalation	100ppm	0,20
PROC19	Concentration of substance in product: 5% - 25%	Inhalation	300ppm	0,60
PROC19	Concentration of substance in product: 5% - 25%, with gloves	Dermal	16,97mg/kg/day	0,09

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 22: Use in de-icing and anti-icing applications		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC4: Anti-freeze and de-icing products	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Exposure duration	0,02 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 6600 cm^2
Other given operational	Room size	34 m3

conditions affecting consumers exposure	Covers use in a one car garage (34 m3) under typical ventilation.	
2.3 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Exposure duration	0,17 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
2.4 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	240 hPa
Amount used	Amount used per event	4 g
Frequency and duration of use	Exposure duration	0,25 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 214,4 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	

3. Exposure estimation and reference to its source

Environment

No information available.

Consumers

No exposure assessment presented for human health.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Risk characterization ratios (RCRs) were calculated by comparing the predicted exposure levels with the corresponding DNELs (derived no effect levels) (RCR = exposure level/DNEL)

1. Short title of Exposure Scenario 23: Use in Oil and Gas field drilling and production operations		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4	---	Dermal	6,86mg/kg/day	0,04
PROC8a	---	Inhalation	250ppm	0,50
PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 24: Use in Oil and Gas field drilling and production operations		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC8a)	
	or Avoid carrying out operation for more than 4 hours.(PROC8a)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3	---	Inhalation	100ppm	0,20
PROC4, PROC8b	---	Inhalation	250ppm	0,50
PROC4, PROC8b	---	Dermal	6,86mg/kg/day	0,04
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60
PROC8a	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 25: Explosives manufacture & use		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC3: Use in closed batch process (synthesis or formulation) PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to external treatment of waste for disposal	Contain and dispose of waste in accordance with environmental legislation and according to local regulations.	
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC3, PROC5, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa

Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC3)
	Ensure material transfers are under containment or extract ventilation. or Ensure operation is undertaken outdoors.(PROC5, PROC8a)
	or Avoid carrying out operation for more than 4 hours.(PROC5, PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC3, PROC5	---	Inhalation	100ppm	0,20
PROC5	---	Dermal	0,07mg/kg/day	0,00
PROC5	---	Inhalation	350ppm	0,70
PROC5	---	Dermal	13,71mg/kg/day	0,07
PROC5	---	Inhalation	300ppm	0,60
PROC8a	---	Dermal	0,14mg/kg/day	0,001
PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC8a	with local exhaust ventilation, 80% efficiency	Inhalation	100ppm	0,20
PROC8a	Outdoor use., 30% efficiency	Inhalation	350ppm	0,70
PROC8a	during 1 - 4 hours	Inhalation	300ppm	0,60

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 26: Use as processing aid	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a		
Substance is a unique structure, Readily biodegradable.		
Amount used	To be defined by site	
Frequency and duration of use	Continuous exposure	360 days/year
Other given operational conditions affecting environmental exposure	Indoor/Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
	Air	or, Charcoal adsorbers
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related	Contain and dispose of waste in accordance with environmental legislation and	

to external treatment of waste for disposal	according to local regulations.
Conditions and measures related to external recovery of waste	If recycling is not practicable, dispose of in compliance with local regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Locate bulk storage outdoors. 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.	
	Sample via a closed loop or other system to avoid exposure. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

3. Exposure estimation and reference to its source

Environment

No information available.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation	0,01ppm	0,00002
PROC1, PROC3	---	Dermal	0,34mg/kg/day	0,002
PROC2, PROC14, PROC15	---	Inhalation	50ppm	0,10
PROC2	---	Dermal	1,37mg/kg/day	0,01
PROC3, PROC4	---	Inhalation	100ppm	0,20
PROC4, PROC9	---	Dermal	6,86mg/kg/day	0,04
PROC5, PROC6, PROC8a, PROC10	---	Inhalation	250ppm	0,50

PROC5, PROC8a	---	Dermal	13,71mg/kg/day	0,07
PROC6, PROC10	---	Dermal	27,43mg/kg/day	0,15
PROC8b	---	Inhalation	150ppm	0,30
PROC8b	---	Dermal	6,86mg/kg/day	0,037
PROC9	---	Inhalation	200ppm	0,40
PROC14, PROC15	---	Dermal	0,34mg/kg/day	0,00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
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.
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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