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

1.1. Product identifier.

Code:	**57021002**
Product name.	**UNIPLAST**
Chemical name and synonym.	**POLYURETHANE ADHESIVE**

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

Intended use. **POLYURETHANE ADHESIVE**

Uses advised against
This product is not recommended for all those industrial, professional or consumer uses not specifically identified on the label.

1.3. Details of the supplier of the safety data sheet.

Name.	**SARATOGA INT. SFORZA SPA**
Full address.	**Via Edison 76**
District and Country.	**20090 Trezzano s/Naviglio (MI)** **ITALIA**
	Tel. 0039-02 445731
	Fax. 0039-02 4452742
e-mail address of the competent person.	
responsible for the Safety Data Sheet.	**trading@saratogasforza.com**
Product distribution by:	**SARATOGA INT. SFORZA SPA**

1.4. Emergency telephone number.

For urgent inquiries refer to.

CAV - Ospedale Pediatrico "Bambino Gesù" - Roma - Tel. +39 06 68593726 (h24)
CAV - Azienda Ospedaliero-Universitaria Foggia - Foggia - Tel. +39 0881 732326 (h24)
CAV - Azienda Ospedaliera "A. Cardarelli" - Napoli - Tel. +39 081 7472870 (h24)
CAV - Policlinico "Umberto I" - Roma - Tel. +39 06 4450618 (h24)
CAV - Policlinico "A. Gemelli" - Roma - Tel. +39 06 3054343 (h24)
CAV - Az. Osp. "Careggi" U.O. Tossicol. Medica - Firenze - Tel. +39 055 7947819(h24)
CAV - Centro Naz. di Informazione Tossicologica - Pavia - Tel. +39 0382 24444 (h24)
CAV - Ospedale "Niguarda Ca' Granda" - Milano - Tel. +39 02 66101029 (h24)
CAV - Azienda Osp. "Papa Giovanni XXIII" - Bergamo - Tel. +39 800 883300 (h24)

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Flammable liquid, category 2	H225	Highly flammable liquid and vapour.
Eye irritation, category 2	H319	Causes serious eye irritation.
Specific target organ toxicity - single exposure, category 3	H336	May cause drowsiness or dizziness.

2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Precautionary statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources — No smoking.
P233	Keep container tightly closed.
P261	Avoid breathing vapours.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P501	Dispose of contents/container to authorized collection centers.

Contains:

ACETONE
ETHYL ACETATE
METHYL ETHYL KETONE

2.3. Other hazards.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients.

3.2. Mixtures.

Contains:

The full wording of hazard (H) phrases is given in section 16 of the sheet.

Identification.		**Classification 1272/2008 (CLP).**
ETHYL ACETATE		
CAS. 141-78-6	10 ≤ x < 20	Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066
EC. 205-500-4		
INDEX. 607-022-00-5		
Reg. no. 01-2119475103-46		
ACETONE		
CAS. 67-64-1	30 ≤ x < 60	Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066
EC. 200-662-2		
INDEX. 606-001-00-8		
Reg. no. 01-2119471330-49		
METILETILCHETONE		
CAS. 78-93-3	5 ≤ x < 10	Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066
EC. 201-159-0		
INDEX. 606-002-00-3		
Reg. no. 01-2119457290-43		

SECTION 4. First aid measures.

4.1. Description of first aid measures.

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

Specific information on symptoms and effects caused by the product are unknown.
For symptoms and effects caused by the contained substances, see chap. 11.

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

Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT
Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.
UNSUITABLE EXTINGUISHING EQUIPMENT
Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

5.3. Advice for firefighters.

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

Send away individuals who are not suitably equipped. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.

6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s).

See attached scenarios.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

CZE	Česká Republika	Nařízení vlády č. 361/2007 Sb. kterým se stanoví podmínky ochrany zdraví při práci
DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
FRA	France	JORF n°0109 du 10 mai 2012 page 8773 texte n° 102
GBR	United Kingdom	EH40/2005 Workplace exposure limits
HRV	Hrvatska	NN13/09 - Ministarstvo gospodarstva, rada i poduzetništva
HUN	Magyarország	50/2011. (XII. 22.) NGM rendelet a munkahelyek kémiai biztonságáról
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
POL	Polska	ROZPORZĄDZENIE MINISTRA PRACY I POLITYKI SPOŁECZNEJ z dnia 16 grudnia 2011r
EU	OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
	TLV-ACGIH	ACGIH 2016

ETHYL ACETATE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV	CZE	700		900	
AGW	DEU	1500	400	3000	800
MAK	DEU	1500	400	3000	800
VLA	ESP	1460	400		
VLEP	FRA	1400	400		
WEL	GBR		200		400
GVI	HRV		200		400

AK	HUN	1400		1400
NDS	POL	200		600
TLV-ACGIH		1441	400	

Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,24	mg/l
Normal value in marine water	0,02	mg/l
Normal value for fresh water sediment	1,15	mg/kg/d
Normal value for marine water sediment	0,115	mg/kg/d
Normal value of STP microorganisms	650	mg/l
Normal value for the food chain (secondary poisoning)	0,2	g/kg
Normal value for the terrestrial compartment	0,148	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers.				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.				4,5 mg/kg bw/d				
Inhalation.	734 mg/m3	734 mg/m3	367 mg/m3	367 mg/m3	1468 mg/m3	1468 mg/m3	734 mg/m3	734 mg/kg
Skin.				37 mg/kg bw/d				63 mg/kg bw/d

ACETONE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV	CZE	800		1500	
AGW	DEU	1200	500	2400	1000
MAK	DEU	1200	500	2400	1000
VLA	ESP	1210	500		
VLEP	FRA	1210	500	2420	1000
WEL	GBR	1210	500	3620	1500
GVI	HRV	1210	500		
AK	HUN	1210		2420	
VLEP	ITA	1210	500		
NDS	POL	600		1800	
OEL	EU	1210	500		
TLV-ACGIH		1187	500	1781	750

Predicted no-effect concentration - PNEC.

Normal value in fresh water	10,6	mg/l
Normal value in marine water	21	mg/l
Normal value for fresh water sediment	30,4	mg/kg
Normal value for marine water sediment	3,04	mg/kg
Normal value of STP microorganisms	100	mg/l
Normal value for the terrestrial compartment	33,3	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers.				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.				62 mg/kg				
Inhalation.				200 mg/m3		2420 mg/m3		1210 mg/m3
Skin.				62 mg/kg				186 mg/kg

METILETILCHETONE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm

TLV	CZE	600		900		
AGW	DEU	600	200	600	200	PELLE
MAK	DEU	600	200	600	200	PELLE
VLA	ESP	600	200	900	300	
VLEP	FRA	600	200	900	300	PELLE
WEL	GBR	600	200	899	300	PELLE
GVI	HRV	600	200	900	300	PELLE
AK	HUN	600		900		
VLEP	ITA	600	200	900	300	
NDS	POL	450		900		
OEL	EU	600	200	900	300	
TLV-ACGIH		590	200	885	300	

Predicted no-effect concentration - PNEC.		
Normal value in fresh water	55,8	mg/l
Normal value for fresh water sediment	284,74	mg/kg
Normal value for marine water sediment	284,74	mg/kg
Normal value of STP microorganisms	709	mg/l
Normal value for the terrestrial compartment	22,5	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers.				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.				31 mg/kg				
Inhalation.				106 mg/m3				600 mg/m3
Skin.				412 mg/kg				1161 mg/kg

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

TLV of solvent mixture: 1094 mg/m3.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must be CE marked, showing that it complies with applicable standards.

When choosing risk management measures and operating conditions, consult the exposition scenarios attached.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.

EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

For information on controlling environmental exposure, see the exposure scenarios attached to this safety datasheet.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	dense liquid
Colour	clear
Odour	characteristic of solvent
Odour threshold.	Not available.
pH.	Not available.
Melting point / freezing point.	Not available.
Initial boiling point.	55 °C.
Boiling range.	Not available.
Flash point.	-15 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	Not available.
Lower inflammability limit.	2,1 % (V/V).
Upper inflammability limit.	13 % (V/V).
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	233 mm Hg.

Vapour density	Not available.
Relative density.	0,89
Solubility	soluble in organic
Partition coefficient: n-octanol/water	solvents Not available.
Auto-ignition temperature.	460°C
Decomposition temperature.	Not available.
Viscosity	2900 cps a 25 C°
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.

Total solids (250°C / 482°F)	23,80%
VOC (Directive 2010/75/EC) :	76,20%
VOC (volatile carbon) :	46,20%

SECTION 10. Stability and reactivity.

10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

ETHYL ACETATE
Decomposes slowly into acetic acid and ethanol under the effect of light, air and water.

ACETONE
Decomposes under the effect of heat.

METILETILCHETONE
Decomposes under the effect of heat.

10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions.

The vapours may also form explosive mixtures with the air.

ETHYL ACETATE
Risk of explosion on contact with: alkaline metals,hydrides,oleum.May react violently with: fluorine,strong oxidising agents,chlorosulphuric acid,potassium tert-butoxide.Forms explosive mixtures with: air.

ACETONE
Risk of explosion on contact with: bromine trifluoride,fluorine dioxide,hydrogen peroxide,nitrosyl chloride,2-methyl-1,3 butadiene,nitromethane,nitrosyl perchlorate.May react dangerously with: potassium tert-butoxide,alkaline hydroxides,bromine,bromoform,isoprene,sodium,sulphur dioxide,chromium trioxide,chromyl chloride,nitric acid,chloroform,peroxymonosulphuric acid,phosphoryl oxychloride,chromosulphuric acid,fluorine,strong oxidising agents,strong reducing agents.Develops flammable gas on contact with: nitrosyl perchlorate.

METILETILCHETONE
Risk of explosion on contact with: bromine trifluoride,fluorine dioxide,hydrogen peroxide,nitrosyl chloride,2-methyl-1,3 butadiene,nitromethane,nitrosyl perchlorate.May react dangerously with: potassium tert-butoxide,alkaline hydroxides,bromine,bromoform,isoprene,sodium,sulphur dioxide,chromium trioxide,chromyl chloride,nitric acid,chloroform,peroxymonosulphuric acid,phosphoryl oxychloride,chromosulphuric acid,fluorine,strong oxidising agents,strong reducing agents.Develops flammable gas on contact with: nitrosyl perchlorate.

10.4. Conditions to avoid.

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

ETHYL ACETATE
Avoid exposure to: light,sources of heat,naked flames.

ACETONE
Avoid exposure to: sources of heat,naked flames.

METILETILCHETONE
Avoid exposure to: sources of heat,naked flames.

10.5. Incompatible materials.

ETHYL ACETATE
Incompatible with: acids,bases,strong oxidants,aluminium,nitrates,chlorosulphuric acid.Incompatible materials: plastic materials.

ACETONE
Incompatible with: acids,oxidising substances.

METILETILCHETONE
Incompatible with: acids,oxidising substances.

10.6. Hazardous decomposition products.

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

ACETONE
May develop: ketenes,irritant substances.

METILETILCHETONE
May develop: ketenes,irritant substances.

SECTION 11. Toxicological information.

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects.

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:Not classified (no significant component).
LD50 (Oral) of the mixture:Not classified (no significant component).
LD50 (Dermal) of the mixture:Not classified (no significant component).

ACETONE

LD50 (Oral).5800 mg/kg ratto
LD50 (Dermal).> 20 coniglio
LC50 (Inhalation).21,09 ratto

METILETILCHETONE
LD50 (Oral).> 2000 mg/kg Ratto
LD50 (Dermal).> 5000 mg/kg Coniglio
LC50 (Inhalation).> 5000 Ratto

ETHYL ACETATE
LD50 (Oral).4934 ratto
LD50 (Dermal).> 20000 coniglio

SKIN CORROSION / IRRITATION.
Causes skin irritation.
SERIOUS EYE DAMAGE / IRRITATION.
Causes serious eye irritation.
RESPIRATORY OR SKIN SENSITISATION.
Does not meet the classification criteria for this hazard class.
GERM CELL MUTAGENICITY.
Does not meet the classification criteria for this hazard class.
CARCINOGENICITY.
Does not meet the classification criteria for this hazard class.
REPRODUCTIVE TOXICITY.
Does not meet the classification criteria for this hazard class.
STOT - SINGLE EXPOSURE.
May cause drowsiness or dizziness.
STOT - REPEATED EXPOSURE.
Does not meet the classification criteria for this hazard class.
ASPIRATION HAZARD.
Does not meet the classification criteria for this hazard class Viscosity: 2900 cps a 25 C°

SECTION 12. Ecological information.

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity.

ACETONE	
LC50 - for Fish.	8120 mg/l/96h Pimephales promelas
EC50 - for Crustacea.	8800 mg/l/48h Daphnia
EC50 - for Algae / Aquatic Plants.	530 mg/l/72h Alga
METILETILCHETONE	
LC50 - for Fish.	2993 mg/l/96h Pimephales promelas
EC50 - for Crustacea.	308 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants.	2029 mg/l/72h Scenedesmus subspicatus
ETHYL ACETATE	
LC50 - for Fish.	230 mg/l/96h Pimephales promelas
EC50 - for Crustacea.	165 mg/l/48h Daphnia magna
Chronic NOEC for Crustacea.	2,4 mg/l Daphnia pulex
Chronic NOEC for Algae / Aquatic Plants.	> 100 mg/l Scenedesmus subspicatus

12.2. Persistence and degradability.

The paraffinic hydrocarbons fraction may be considered biodegradable in water and in air. They distribute mostly in the air. The small non biodegradable amount which spreads into water tends to accumulate in fish.

ACETONE

Rapidly biodegradable.

METILETILCHETONE

Rapidly biodegradable.

ETHYL ACETATE

Solubility in water.	> 10000 mg/l

Rapidly biodegradable.

12.3. Bioaccumulative potential.

ACETONE

Partition coefficient: n-octanol/water.	-0,23
BCF.	3

ETHYL ACETATE

Partition coefficient: n-octanol/water.	0,68
BCF.	30

12.4. Mobility in soil.

Information not available

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

Information not available.

SECTION 13. Disposal considerations.

13.1. Waste treatment methods.

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Waste transportation may be subject to ADR restrictions.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information.

14.1. UN number.

ADR / RID, IMDG, IATA:	1133

14.2. UN proper shipping name.

ADR / RID:	ADHESIVES
IMDG:	ADHESIVES (HEPTANE)
IATA:	ADHESIVES

14.3. Transport hazard class(es).

ADR / RID:	Class: 3	Label: 3
IMDG:	Class: 3	Label: 3
IATA:	Class: 3	Label: 3

14.4. Packing group.

ADR / RID, IMDG, IATA:	II

14.5. Environmental hazards.

ADR / RID:	NO

IMDG: NO

IATA: NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14.6. Special precautions for user.

ADR / RID:	HIN - Kemler: 33	Limited Quantities: 5 L	Tunnel restriction code: (D/E)
	Special Provision: 640C		
IMDG:	EMS: F-E, S-D	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 364
	Pass.:	Maximum quantity: 5 L	Packaging instructions: 353
	Special Instructions:	A3	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code.

Information not relevant.

SECTION 15. Regulatory information.

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

Seveso Category - Directive 2012/18/EC: P5c-E1

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

Product.
Point. 3 - 40

Substances in Candidate List (Art. 59 REACH).

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisarion (Annex XIV REACH).

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment.

A chemical safety assessment has been performed for the following contained substances.

ETHYL ACETATE

ACETONE

METILETILCHETONE

SECTION 16. Other information.

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Liq. 2	Flammable liquid, category 2
Eye Irrit. 2	Eye irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals

- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

Changes to previous review:
Scenarios added

Exposition Scenarios.

Substance.	ETHYL ACETATE
Scenario Title.	ETHYL ACETATE BRENNTAG
Revision nr.	1
File.	EN_Acetato di etile_1.pdf

Substance.	ACETONE
Scenario Title.	ACETONE BRENNTAG
Revision nr.	1
File.	EN_Acetone_1.pdf

Substance.	METILETILCHETONE
Scenario Title.	BUTANONE BRENNTAG
Revision nr.	1
File.	EN_Metiletilchetone_1.pdf

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	Distribution of substance	3	8, 9	NA	1, 2, 8a, 8b, 9, 15	2	NA	ES1393
2	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1391
3	Use in Cleaning Agents	3	NA	NA	2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES13890
4	Use in Cleaning Agents	22	NA	NA	2, 3, 4, 8a, 8b, 10, 11, 13	8a	NA	ES13892
5	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES13894
6	Use as lubricants	22	NA	NA	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	8a	NA	ES13896
7	Use in laboratories	3	NA	NA	15	4	NA	ES1402
8	Use in laboratories	22	NA	NA	15	8a	NA	ES1406
9	Use as extraction agent and/or processing aid	3	9	NA	1, 2, 3, 4, 8a, 8b	1	NA	ES1395
10	Uses in coatings	22	NA	NA	1, 2, 8a, 8b, 10, 11, 13, 19	8a, 8d	NA	ES1404
11	Use in agrochemicals	22	NA	NA	2, 4, 8a, 8b, 11, 13	8a, 8c, 8d, 8f	NA	ES8752
12	Uses in coatings	21	NA	1, 9a	NA	8a	NA	ES1408
13	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15, 9, 14	4	NA	ES18795

1. Short title of Exposure Scenario 1: Distribution of substance		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
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) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual site tonnage (tons/year):	30000 tonnes
	Daily amount per site	100 tonnes
	Fraction used at the main local source.	1
	Annually total	30000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2 %
	Emission or Release Factor: Water	10 %
	Emission or Release Factor: Soil	0 %
	Outdoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient pressure.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit	Air	Containment should be used to minimize releases to air., Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental

discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		legislation
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 87 %)
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Hazardous waste incineration., Dispose for use in recycled fuels.
	Disposal methods	Dispose of waste product or used containers according to local regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8a, PROC8b, PROC9, 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	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	> 240 min
	Exposure duration per day	60 - 240 min(PROC8a)
Human factors not influenced by risk management	Exposed skin areas	Two hands 960 cm²
Other operational conditions affecting workers exposure	Outdoor or in highly ventilated (open) spaces	
	Indoor use.(PROC8b, PROC9)	
Technical conditions and measures to control dispersion from source towards the worker	General exposures Continuous process	Handle substance within a closed system.(PROC1)
	General exposures Continuous process with sample collection	Handle substance within a closed system.(PROC2)
	Bulk transfers Non-dedicated facility	Use drum pumps or carefully pour from container. Locate bulk storage outdoors.(PROC8a)

	Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide extract ventilation to material transfer points and other openings. Clear transfer lines prior to de-coupling. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Locate bulk storage outdoors.(PROC8b)
	Drum/batch transfers Filling / preparation of equipment from drums or containers Bulk weighing	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide extract ventilation to material transfer points and other openings.(PROC9)
	Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN374) and eye protection. Butyl rubber gloves offer good protection	

3. Exposure estimation and reference to its source

Environment

ERC2: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC2	---	Fresh water	PEC	0,179mg/L	0,688
ERC2	---	Marine water	PEC	0,018mg/L	0,688
ERC2	---	Fresh water sediment	PEC	0,239mg/kg	0,854
ERC2	---	Marine sediment	PEC	0,024mg/kg	0,085
ERC2	---	Soil	PEC	0,002mg/kg	0,009
ERC2	---	Sewage treatment plant (STP)	PEC	1,77mg/L	0,003
ERC2	---	Total daily intake via local environment	PEC	0,005mg/kg bw/day	< 0,001

Workers

PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,026mg/m³	< 0,001
PROC1	---	Worker - dermal, long-	0,34mg/kg bw/day	0,0054

		term - systemic		
PROC2	---	Worker - inhalative, long-term - local	128,48mg/m³	0,18
PROC2	---	Worker - dermal, long-term - systemic	1,37mg/kg bw/day	0,022
PROC8a	---	Worker - inhalative, long-term - local	385,44mg/m³	0,53
PROC8a	---	Worker - dermal, long-term - systemic	2,74mg/kg bw/day	0,044
PROC8b	---	Worker - inhalative, long-term - local	9,91mg/m³	0,014
PROC8b	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC9	---	Worker - inhalative, long-term - local	73,42mg/m³	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC15	---	Worker - inhalative, long-term	50ppm	0,25
PROC15	---	Worker - dermal, long-term - systemic	0,34mg/kg bw/day	0,005

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: 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	
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)	
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) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual site tonnage (tons/year):	15000 tonnes
	Daily amount per site	50 tonnes
	Fraction used at the main local source.	0,4
	Annually total	60000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,5 %
	Emission or Release Factor: Water	0,3 %
	Emission or Release Factor: Soil	0,01 %
	Indoor use.	
Technical conditions and measures at process level	Air	Treatment of air emissions is not required for the purposes of REACH compliance but may be

(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		needed to comply with other environmental legislation
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 87 %)
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Hazardous waste incineration., Dispose for use in recycled fuels., External treatment and disposal of waste should comply with applicable local and/or national regulations.
	Disposal methods	Dispose of waste product or used containers according to local regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, 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	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	> 240 min
	Exposure duration per day	< 240 min(PROC8a, PROC8b)
Human factors not influenced by risk management	Exposed skin areas	Two hands 960 cm²
Other operational conditions affecting workers exposure	Indoor use.	
	Outdoor use.(PROC1)	
Technical conditions and measures to control dispersion from source towards the worker	General exposures Continuous process	Handle substance within a closed system.(PROC1)
	General exposures Continuous process	Ensure material transfers are under containment or extract ventilation.

with sample collection	Provide extraction ventilation at points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC2)
Bulk transfers Non-dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Use drum pumps or carefully pour from container. Locate bulk storage outdoors.(PROC8a)
Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Clear transfer lines prior to de-coupling. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Locate bulk storage outdoors.(PROC8b)
Drum/batch transfers Filling / preparation of equipment from drums or containers Bulk weighing	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC9)
General exposures Use in contained batch processes	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC3)
General exposures Use in contained batch processes with sample collection	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC4)
Mixing operations (open systems) Batch process	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC5)
Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)

Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN374) and eye protection. Butyl rubber gloves offer good protection

3. Exposure estimation and reference to its source

Environment

ERC2: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC2	---	Fresh water	PEC	0,144mg/L	0,554
ERC2	---	Marine water	PEC	0,0144mg/L	0,554
ERC2	---	Fresh water sediment	PEC	0,192mg/kg	0,686
ERC2	---	Marine sediment	PEC	0,019mg/kg	0,0685
ERC2	---	Soil	PEC	0,0015mg/kg	0,005
ERC2	---	Sewage treatment plant (STP)	PEC	1,416mg/L	0,0022
ERC2	---	Total daily intake via local environment	PEC	0,003mg/kg bw/day	< 0,001

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,03mg/m³	< 0,001
PROC1	---	Worker - dermal, long-term - systemic	0,34mg/kg bw/day	0,0054
PROC2	---	Worker - inhalative, long-term - local	18,35mg/m³	0,025
PROC2	---	Worker - dermal, long-term - systemic	0,14mg/kg bw/day	0,0022
PROC3	---	Worker - inhalative, long-term - local	73,42mg/m³	0,10
PROC3	---	Worker - dermal, long-term - systemic	0,03mg/kg bw/day	< 0,001
PROC4	---	Worker - inhalative, long-term - local	73,42mg/m³	0,25
PROC4	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC5	---	Worker - inhalative, long-term - local	183,54mg/m³	0,301
PROC5	---	Worker - dermal, long-term - systemic	0,07mg/kg bw/day	0,0011
PROC8a	---	Worker - inhalative, long-	55,06mg/m³	0,075

		term - local		
PROC8a	---	Worker - dermal, long-term - systemic	0,14mg/kg bw/day	0,0022
PROC8b	---	Worker - inhalative, long-term - local	33,04mg/m³	0,075
PROC8b	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC9	---	Worker - inhalative, long-term - local	73,42mg/m³	0,10
PROC9	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC15	---	Worker - inhalative, long-term	50ppm	0,25
PROC15	---	Worker - dermal, long-term - systemic	0,34mg/kg bw/day	0,005

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use in Cleaning Agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	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 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring	
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		
Amount used	Annual amount per site	25 ton(s)/year
	Daily amount per site	1200 kg/day
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	30 %
	Emission or Release Factor: Water	0,01 %
	Emission or Release Factor: Soil	0 %
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 (%):
	Water	Do not release wastewater directly into environment., Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):, If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements. Store all VOC-containing wastes in closed, secure containers (e.g., bulk tanks, intermediate bulk containers, drums)	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage	2.000 m3/d

	treatment plant effluent	
	Degradation efficiency	88 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, 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	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20 °C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Use in contained batch processes Treatment by heating	Provide extract ventilation to points where emissions occur.(PROC4)
	Filling / preparation of equipment from drums or containers	Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.(PROC8a)
	Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling.(PROC8b)
	Cleaning with low-pressure washers	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC10)
	Manual Surfaces cleaning No spraying	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC10)
	Degreasing small objects in cleaning station	Provide extract ventilation to points where emissions occur. Clear spills immediately.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning with high pressure washers	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.(PROC7)
	Cleaning with low-pressure washers	Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Manual Surfaces cleaning No spraying	Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)

3. Exposure estimation and reference to its source

Environment

ERC4: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	---	Fresh water	PEC - local	0,00117mg/L	0,0045
ERC4	---	Fresh water sediment	PEC - local	0,00698mg/kg dry weight (d.w.)	0,00558
ERC4	---	Marine water	PEC - local	0,000132mg/L	0,00508
ERC4	---	Marine sediment	PEC - local	0,000784mg/kg dry weight (d.w.)	0,00627
ERC4	---	Soil	PEC - local	0,00114mg/kg dry weight (d.w.)	0,00691
ERC4	---	Sewage treatment plant (STP)	PEC	0,0625mg/L	0,000096
ERC4	---	---	Msafe	173000kg/day	---

ESVOC spERC 4.4a.v1 has been used to evaluate the exposure for the environment.

Workers

PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2, PROC8a, PROC13	---	Inhalation worker exposure	25ppm	0,125
PROC2, PROC8a, PROC13	---	Dermal worker exposure	1,371mg/kg/day	0,022
PROC3, PROC4, PROC7	---	Inhalation worker exposure	50ppm	0,25
PROC3, PROC4, PROC8b	---	Dermal worker exposure	0,686mg/kg/day	0,011
PROC7	---	Dermal worker exposure	42,86mg/kg/day	0,68
PROC8b	---	Inhalation worker exposure	4,5ppm	0,023
PROC10	---	Inhalation worker exposure	75ppm	0,375
PROC10	---	Dermal worker exposure	27,43mg/kg/day	0,435

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.
The following equation may be used for scaling:

$$\frac{m_{spERC} * (1 - E_{ER,spERC}) * F_{release,spERC}}{DF_{spERC}} \geq \frac{m_{site} * (1 - E_{ER,site}) * F_{release,site}}{DF_{site}}$$

Where: mspERC: Substance use rate in spERC
EER,spERC: Efficacy of RMM in spERC
Frelease,spERC: Initial release fraction in spERC
DFspERC: spERC wastewater dilution factor

Msite: Substance use rate at site
EER,site: Efficacy of RMM at site
Frelease,site: Initial release fraction at site
DFsite: site-specific wastewater dilution factor
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use in Cleaning Agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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 PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Amount used	Annual amount per site	0,005 ton(s)/year
	Daily amount per site	0,013 kg/day
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	100 %
	Emission or Release Factor: Water	100 %
	Emission or Release Factor: Soil	0 %
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	Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Prevent environmental discharge consistent with regulatory requirements. Store all VOC-containing wastes in closed, secure containers (e.g., bulk tanks, intermediate bulk containers, drums)	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	88 %

Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20 °C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC4)
	Application of cleaning products in closed systems Outdoor.	Ensure operation is undertaken outdoors.(PROC4)
	Cleaning of medical devices	Provide extract ventilation to points where emissions occur.(PROC4)
	Filling / preparation of equipment from drums or containers Outdoor.	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8a)
	Filling / preparation of equipment from drums or containers Dedicated facility	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC8b)
	Cleaning with low-pressure washers Rolling, Brushing No spraying	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC10)
	Manual Surfaces cleaning	Limit the substance content in the product to 5 %. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc Rolling, Brushing	Provide extract ventilation to points where emissions occur.(PROC10)
	Cleaning with high pressure washers Spraying Indoor.	Limit the substance content in the product to 5 %. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC11)

	Cleaning with high pressure washers Spraying Outdoor.	Limit the substance content in the product to 1 %. Ensure operation is undertaken outdoors.(PROC11)
	Dipping, immersion and pouring Manual Surfaces cleaning	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	Filling / preparation of equipment from drums or containers Outdoor.	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.(PROC8a)
	Ad hoc manual application via trigger sprays, dipping, etc Rolling, Brushing	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.(PROC10)
	Cleaning with high pressure washers Spraying Outdoor.	Wear suitable gloves tested to EN374. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)

3. Exposure estimation and reference to its source

Environment

ERC8a: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a	---	Fresh water	PEC - local	0,00075mg/L	0,00288
ERC8a	---	Fresh water sediment	PEC - local	0,00448mg/kg dry weight (d.w.)	0,00358
ERC8a	---	Marine water	PEC - local	0,0000894mg/L	0,00344
ERC8a	---	Marine sediment	PEC - local	0,000533mg/kg dry weight (d.w.)	0,00426
ERC8a	---	Soil	PEC - local	0,000242mg/kg dry weight (d.w.)	0,00147
ERC8a	---	Sewage treatment plant (STP)	PEC	0,0274mg/L	0,000042
ERC8a	---	---	Msafe	3,05kg/day	---

Workers

PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Inhalation worker exposure	30ppm	0,15
PROC2	---	Dermal worker exposure	0,822mg/kg/day	0,013
PROC3	---	Inhalation worker exposure	60ppm	0,30
PROC3	---	Dermal worker exposure	0,414mg/kg/day	0,007
PROC4	---	Inhalation worker exposure	52,5ppm	0,263
PROC4	---	Dermal worker exposure	4,116mg/kg/day	0,065
PROC8a	---	Inhalation worker exposure	21ppm	0,105
PROC8a, PROC8b, PROC13	---	Dermal worker exposure	8,226mg/kg/day	0,131
PROC8b, PROC13	---	Inhalation worker exposure	45ppm	0,225
PROC10	---	Inhalation worker exposure	90ppm	0,45
PROC10	---	Dermal worker exposure	16,458mg/kg/day	0,261
PROC11	---	Inhalation worker exposure	70ppm	0,35
PROC11	---	Dermal worker exposure	21,428mg/kg/day	0,34

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

Environment
Not applicable for wide dispersive uses.
Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use as lubricants		
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 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 PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC7: Industrial use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC7		
Amount used	Annual amount per site	25 ton(s)/year
	Daily amount per site	1250 kg/day
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,3 %
	Emission or Release Factor: Water	0,1 %
	Emission or Release Factor: Soil	0,1 %
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 (%):
	Water	Do not release wastewater directly into environment., Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):, If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	

	Store all VOC-containing wastes in closed, secure containers (e.g., bulk tanks, intermediate bulk containers, drums)	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	88 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18

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	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20 °C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	Storage	Store substance within a closed system. Avoid dip sampling.(PROC2)
	General exposures (closed systems) Batch process with sample collection	Handle substance within a closed system.(PROC3)
	General exposures (open systems)	Provide extract ventilation to points where emissions occur.(PROC4)
	Spraying	Carry out in a vented booth or extracted enclosure. Automate activity where possible.(PROC7)
	Filling / preparation of equipment from drums or containers Non-dedicated facility	Use drum pumps. Transfer via enclosed lines.(PROC8a)
	Maintenance of small items	Drain down system prior to equipment break-in or maintenance. Avoid manual contact with wet work pieces. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)
	Bulk transfers	Transfer via enclosed lines. Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. Clear spills immediately.

		Remotely vent displaced vapours.(PROC8b)
	Filling / preparation of equipment from drums or containers Dedicated facility	Transfer via enclosed lines. Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. Clear spills immediately. Remotely vent displaced vapours.(PROC8b)
	Maintenance (of larger plant items) and machine set up with local exhaust ventilation	Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Maintenance (of larger plant items) and machine set up without local exhaust ventilation	Drain or remove substance from equipment prior to break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8b)
	Initial factory fill of equipment	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC9)
	Remanufacture of reject articles	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Ensure material transfers are under containment or extract ventilation. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC9)
	Rolling, Brushing Manual	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC10)
	Treatment by dipping and pouring	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Restrict area of openings to equipment. Allow time for product to drain from workpiece.(PROC13)
	Operation and lubrication of high energy open equipment	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC17, PROC18)
Conditions and measures related to personal protection, hygiene and health evaluation	Spraying	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. Wear suitable coveralls to prevent exposure to the skin.(PROC7)

3. Exposure estimation and reference to its source

Environment

ERC4, ERC7: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4, ERC7	---	Fresh water	PEC - local	0,00792mg/L	0,0305
ERC4, ERC7	---	Fresh water sediment	PEC - local	0,0472mg/kg dry weight (d.w.)	0,0378
ERC4, ERC7	---	Marine water	PEC - local	0,00806mg/L	0,31
ERC4, ERC7	---	Marine sediment	PEC - local	0,00481mg/kg dry weight (d.w.)	0,0385
ERC4, ERC7	---	Soil	PEC - local	0,00356mg/kg dry weight (d.w.)	0,0216
ERC4, ERC7	---	Sewage treatment plant (STP)	PEC	0,625mg/L	0,000962
ERC4, ERC7	---	---	Msafe	4030kg/day	---

ESVOC spERC 4.4a.v1 has been used to evaluate the exposure for the environment.

Workers

PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation worker exposure	0,01ppm	< 0,001
PROC1	---	Dermal worker exposure	0,03mg/kg/day	< 0,001
PROC2	---	Inhalation worker exposure	25ppm	0,125
PROC2	---	Dermal worker exposure	1,37mg/kg/day	0,022
PROC3, PROC7, PROC8a	---	Inhalation worker exposure	50ppm	0,25
PROC3	---	Dermal worker exposure	0,69mg/kg/day	0,011
PROC4	---	Inhalation worker exposure	10ppm	0,05
PROC4, PROC9	---	Dermal worker exposure	6,86mg/kg/day	0,109
PROC7	---	Dermal worker exposure	8,572mg/kg/day	0,136
PROC8b	---	Inhalation worker exposure	30ppm	0,15
PROC8a, PROC8b, PROC13, PROC18	---	Dermal worker exposure	13,71mg/kg/day	0,218
PROC9	---	Inhalation worker exposure	60ppm	0,3
PROC10	---	Inhalation worker	75ppm	0,375

		exposure		
PROC10, PROC17	---	Dermal worker exposure	27,43mg/kg/day	0,435
PROC13	---	Inhalation worker exposure	87,5ppm	0,438
PROC17, PROC18	---	Inhalation worker exposure	5ppm	0,025

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.
The following equation may be used for scaling:

$$\frac{m_{spERC} * (1 - E_{ER,spERC}) * F_{release,spERC}}{DF_{spERC}} \geq \frac{m_{site} * (1 - E_{ER,site}) * F_{release,site}}{DF_{site}}$$

Where: mspERC: Substance use rate in spERC
EER,spERC: Efficacy of RMM in spERC
Frelease,spERC: Initial release fraction in spERC
DFspERC: spERC wastewater dilution factor

Msite: Substance use rate at site
EER,site: Efficacy of RMM at site
Frelease,site: Initial release fraction at site
DFsite: site-specific wastewater dilution factor
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use as lubricants		
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 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 PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Amount used	Annual amount per site	0,005 ton(s)/year
	Daily amount per site	0,013 kg/day
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	100 %
	Emission or Release Factor: Water	100 %
	Emission or Release Factor: Soil	0 %
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	Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Prevent environmental discharge consistent with regulatory requirements. Store all VOC-containing wastes in closed, secure containers (e.g., bulk tanks, intermediate bulk containers, drums)	
Conditions and measures related to sewage treatment plant	Type of Sewage	Domestic sewage treatment plant

	Treatment Plant	
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	88 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20

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	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20 °C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	Storage	Store substance within a closed system.(PROC2)
	General exposures (closed systems) Batch process with sample collection	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle substance within a closed system.(PROC3)
	General exposures (open systems)	Provide extract ventilation to points where emissions occur. Ensure material transfers are under containment or extract ventilation.(PROC4)
	Filling / preparation of equipment from drums or containers Non-dedicated facility	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors. Use drum pumps or carefully pour from container. Provide enhanced general ventilation by mechanical means.(PROC8a)
	Maintenance (of larger plant items) and machine set up	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors. Drain down system prior to equipment break-in or maintenance. Clear transfer lines prior to de-coupling.(PROC8a)
	Maintenance (of larger plant items) and machine set up Elevated temperature	Provide extract ventilation to points where emissions occur. Drain down system prior to equipment break-in or maintenance. Clear transfer lines prior to de-coupling.(PROC8a)
	Bulk transfers	Transfer via enclosed lines.

		Clear transfer lines prior to de-coupling. Handle substance within a closed system.(PROC8b)
	Filling / preparation of equipment from drums or containers Dedicated facility	Transfer via enclosed lines. Use drum pumps or carefully pour from container.(PROC8b)
	Maintenance of small items	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Drain or remove substance from equipment prior to break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC9)
	Rolling, Brushing Manual with local exhaust ventilation	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide extract ventilation to points where emissions occur.(PROC10)
	Spraying with local exhaust ventilation	Limit the substance content in the mixture to 25 %. Carry out in a vented booth or extracted enclosure.(PROC11)
	Spraying without local exhaust ventilation	Limit the substance content in the mixture to 25 %.(PROC11)
	Treatment by dipping and pouring	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Allow time for product to drain from workpiece.(PROC13)
	Operation and lubrication of high energy open equipment Indoor.	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC17, PROC18)
	Operation and lubrication of high energy open equipment Outdoor.	Limit the substance content in the product to 5 %. Ensure operation is undertaken outdoors.(PROC17)
	Restrict area of openings to equipment.(PROC20)	
Conditions and measures related to personal protection, hygiene and health evaluation	Rolling, Brushing Manual without local exhaust ventilation	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.(PROC10)
	Spraying without local exhaust ventilation	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.(PROC11)

3. Exposure estimation and reference to its source

Environment

ERC8a: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a	---	Fresh water	PEC - local	0,00075mg/L	0,00288
ERC8a	---	Fresh water sediment	PEC - local	0,00448mg/kg dry weight (d.w.)	0,00358
ERC8a	---	Marine water	PEC - local	0,0000894mg/L	0,00344
ERC8a	---	Marine sediment	PEC - local	0,000533mg/kg dry weight (d.w.)	0,00426
ERC8a	---	Soil	PEC - local	0,000242mg/kg dry weight (d.w.)	0,00147
ERC8a	---	Sewage treatment plant (STP)	PEC	0,0274mg/L	0,000042
ERC8a	---	---	Msafe	3,05kg/day	---

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Inhalation worker exposure	0,01ppm	< 0,001
PROC1	---	Dermal worker exposure	0,03mg/kg/day	< 0,001
PROC2, PROC4, PROC8b, PROC18	---	Inhalation worker exposure	50ppm	0,25
PROC2, PROC4, PROC18	---	Dermal worker exposure	1,37mg/kg/day	0,022
PROC3, PROC10, PROC17	---	Inhalation worker exposure	70ppm	0,35
PROC3	---	Dermal worker exposure	0,69mg/kg/day	0,011
PROC8a	---	Inhalation worker exposure	80ppm	0,4
PROC8a, PROC8b, PROC13	---	Dermal worker exposure	13,71mg/kg/day	0,218
PROC9	---	Inhalation worker	15ppm	0,075

		exposure		
PROC9	---	Dermal worker exposure	6,86mg/kg/day	0,109
PROC10	---	Dermal worker exposure	27,43mg/kg/day	0,435
PROC11	---	Inhalation worker exposure	60ppm	0,3
PROC11	---	Dermal worker exposure	12,857mg/kg/day	0,204
PROC13	---	Inhalation worker exposure	75ppm	0,375
PROC17	---	Dermal worker exposure	5,486mg/kg/day	0,087
PROC20	---	Inhalation worker exposure	25ppm	0,125
PROC20	---	Dermal worker exposure	1,71mg/kg/day	0,027

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

Environment
Not applicable for wide dispersive uses.
Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use in laboratories		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC15: Use as laboratory reagent	
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		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual site tonnage (tons/year):	30 tonnes
	Daily amount per site	1000 kg
	Fraction used at the main local source.	0,01
	Annually total	3000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	100 %
	Emission or Release Factor: Water	100 %
	Emission or Release Factor: Soil	0 %
	Indoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient pressure.	
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	Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required., Do not release wastewater directly into environment.
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d

	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: 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	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	60 - 240 min
Human factors not influenced by risk management	Exposed skin areas	One hand, face side only. 240 cm²
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Laboratory activities	Handle in a fume cupboard or under extract ventilation.
Conditions and measures related to personal protection, hygiene and health evaluation	Laboratory activities	Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

ERC4: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	---	Fresh water	PEC	0,0839mg/L	0,323
ERC4	---	Marine water	PEC	0,0084mg/L	0,323
ERC4	---	Fresh water sediment	PEC	0,1115mg/kg	0,398
ERC4	---	Marine sediment	PEC	0,0112mg/kg	0,040
ERC4	---	Soil	PEC	0,0002mg/kg	< 0,001
ERC4	---	Sewage treatment plant (STP)	PEC	0,8219mg/L	0,001
ERC4	---	Total daily intake via local environment	PEC	0,0021mg/kg bw/day	< 0,001

Workers

PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC15	---	Worker - inhalative, long-term - local	110,12mg/m³	0,151
PROC15	---	Worker - dermal, long-term - systemic	0,343mg/kg bw/day	0,005

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual site tonnage (tons/year):	30 tonnes
	Daily amount per site	2 kg
	Fraction used at the main local source.	0,01
	Annually total	3000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	100 %
	Emission or Release Factor: Water	100 %
	Emission or Release Factor: Soil	0 %
	Indoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient pressure.	
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	Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required., Do not release wastewater directly into environment.
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d

	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: 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	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	60 - 240 min
Human factors not influenced by risk management	Exposed skin areas	One hand, face side only. 240 cm²
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Laboratory activities	Handle in a fume cupboard or under extract ventilation.
Conditions and measures related to personal protection, hygiene and health evaluation	Laboratory activities	Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

ERC8a: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a	---	Fresh water	PEC	0,0839mg/L	0,323
ERC8a	---	Marine water	PEC	0,0084mg/L	0,323
ERC8a	---	Fresh water sediment	PEC	0,1115mg/kg	0,398
ERC8a	---	Marine sediment	PEC	0,0112mg/kg	0,040
ERC8a	---	Soil	PEC	0,0002mg/kg	< 0,001
ERC8a	---	Sewage treatment plant (STP)	PEC	0,8219mg/L	0,001
ERC8a	---	Total daily intake via local environment	PEC	0,0021mg/kg bw/day	< 0,001

Workers

PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC15	---	Worker - inhalative, long-term - local	110,12mg/m³	0,151
PROC15	---	Worker - dermal, long-term - systemic	0,343mg/kg bw/day	0,005

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use as extraction agent and/or processing aid		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU9: Manufacture of fine chemicals	
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	ERC1: Manufacture of substances	
2.1 Contributing scenario controlling environmental exposure for: ERC1		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual site tonnage (tons/year):	300 tonnes
	Daily amount per site	1 tonnes
	Fraction used at the main local source.	0,1
	Annually total	3000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,5 %
	Emission or Release Factor: Water	1 %
	Emission or Release Factor: Soil	0,01 %
	Indoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient pressure.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and	Air	Use containment measures to reduce fugitive emissions., Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation, Use appropriate emission

releases to soil Organizational measures to prevent/limit release from the site		abatement equipment from LEV systems if required by local legislation.
	Keep container tightly closed. Store in a bounded area.	
	Water	Onsite wastewater treatment required, Do not release wastewater directly into environment.
	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 87 %)
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Hazardous waste incineration., Dispose for use in recycled fuels.
	Disposal methods	Dispose of waste product or used containers according to 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	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	> 240 min(PROC3, PROC4)
	Exposure duration per day	60 - 240 min(PROC8a, PROC8b)
Human factors not influenced by risk management	Exposed skin areas	Palms of both hands 480 cm² (PROC3, PROC4)
	Exposed skin areas	Two hands 960 cm² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures Use in contained batch processes	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation.

		Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC3)
	General exposures Use in contained batch processes with sample collection	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC4)
	Bulk transfers Non-dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Use drum pumps or carefully pour from container. Locate bulk storage outdoors.(PROC8a)
	Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Clear transfer lines prior to de-coupling. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Locate bulk storage outdoors.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN374) and eye protection. Butyl rubber gloves offer good protection	

3. Exposure estimation and reference to its source

Environment

ERC1: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC1	---	Fresh water	PEC	0,0106mg/L	0,041
ERC1	---	Marine water	PEC	0,0010mg/L	0,041
ERC1	---	Fresh water sediment	PEC	0,0141mg/kg	0,050
ERC1	---	Marine sediment	PEC	0,0014mg/kg	0,005
ERC1	---	Soil	PEC	0,0031mg/kg	0,014
ERC1	---	Sewage treatment plant (STP)	PEC	0,0778mg/L	< 0,001
ERC1	---	Total daily intake via local environment	PEC	0,0004mg/kg bw/day	< 0,001

Workers

PROC3, PROC4, PROC8a, PROC8b: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC3	---	Worker - inhalative, long-term - local	36,71mg/m³	0,050
PROC3	---	Worker - dermal, long-term - systemic	0,03mg/kg bw/day	< 0,001
PROC4	---	Worker - inhalative, long-term - local	36,71mg/m³	0,050
PROC4	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011
PROC8a	---	Worker - inhalative, long-term - local	55,06mg/m³	0,075
PROC8a	---	Worker - dermal, long-term - systemic	0,14mg/kg bw/day	0,0022
PROC8b	---	Worker - inhalative, long-term - local	9,91mg/m³	0,014
PROC8b	---	Worker - dermal, long-term - systemic	0,69mg/kg bw/day	0,011

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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 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 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		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Daily amount per site	3 kg
	Fraction used at the main local source.	0,002
	Annually total	5000 tonnes
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	90 %
	Emission or Release Factor: Water	90 %
	Emission or Release Factor: Soil	0 %
	Indoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient temperature	
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	Air	Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Treat onsite wastewater (prior to receiving water

prevent/limit release from the site		discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 87 %)
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
	Disposal methods	Dispose of waste product or used containers according to local regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid, spray aerosol
	Vapour pressure	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 300 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	> 240 min(PROC1, PROC2)
	Exposure duration per day	60 - 240 min(PROC10, PROC11, PROC13)
	Exposure duration per day	15 - 60 min(PROC8a, PROC8b, PROC19)
Human factors not influenced by risk management	Exposed skin areas	Hands and forearms. 1500 cm^2
Other operational conditions affecting workers exposure	Indoor use.	
	Outdoor use.(PROC1)	
Technical conditions and measures to control dispersion from source towards the worker	General exposures Continuous process	Clear spills immediately. Ensure operation is undertaken outdoors.(PROC1)
	General exposures Continuous process with sample collection	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear spills immediately.(PROC2)
	Bulk transfers	Ensure material transfers are under containment or

	Non-dedicated facility	extract ventilation. Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container. Locate bulk storage outdoors. Clear spills immediately.(PROC8a)
	Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Locate bulk storage outdoors. Clear spills immediately.(PROC8b)
	Roller, spreader, flow application cleaning Machine Manual	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear spills immediately.(PROC10)
	Treatment by dipping and pouring Machine Manual	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear spills immediately.(PROC13)
	Spraying/fogging by manual application with potential for aerosol generation	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Ensure that a spraying booth is used. Clear spills immediately.(PROC11)
	Transfer from/pouring from containers Mixing operations (closed systems) Manual without local exhaust ventilation Indoor.	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Clear spills immediately.(PROC19)
Conditions and measures related to personal protection, hygiene and health evaluation	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.	
	Wear suitable gloves (tested to EN374) and eye protection. Butyl rubber gloves offer good protection	

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	Fresh water	PEC	0,139mg/L	0,535
ERC8a, ERC8d	---	Marine water	PEC	0,014mg/L	0,535
ERC8a, ERC8d	---	Fresh water sediment	PEC	0,186mg/kg	0,664
ERC8a, ERC8d	---	Marine sediment	PEC	0,019mg/kg	0,066
ERC8a, ERC8d	---	Soil	PEC	0,0002mg/kg	< 0,001
ERC8a, ERC8d	---	Sewage treatment plant (STP)	PEC	1,369mg/L	0,002
ERC8a, ERC8d	---	Total daily intake via local environment	PEC	0,003mg/kg bw/day	< 0,001

Workers

PROC1, PROC2, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC19: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,154mg/m³	< 0,001
PROC1	---	Worker - dermal, long-term - systemic	0,342mg/kg bw/day	0,0054
PROC2	---	Worker - inhalative, long-term - local	22,03mg/m³	0,03
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,0022
PROC8a	---	Worker - inhalative, long-term - local	44,05mg/m³	0,06
PROC8a	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,0022
PROC8b	---	Worker - inhalative, long-term - local	11,01mg/m³	0,015
PROC8b	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,011
PROC10	---	Worker - inhalative, long-term - local	132,15mg/m³	0,18
PROC10	---	Worker - dermal, long-term - systemic	1,37mg/kg bw/day	0,022
PROC11	---	Worker - inhalative, long-term - local	264,3mg/m³	0,36
PROC11	---	Worker - dermal, long-term - systemic	2,14mg/kg bw/day	0,034
PROC13	---	Worker - inhalative, long-term - local	66,08mg/m³	0,091
PROC13	---	Worker - dermal, long-	0,69mg/kg bw/day	0,011

		term - systemic		
PROC19	---	Worker - inhalative, long-term - local	220,25mg/m³	0,30
PROC19	---	Worker - dermal, long-term - systemic	28,28mg/kg bw/day	0,45

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

If the local environmental emission conditions deviate significantly from the used default values, please use the below algorithm to estimate the correct local emissions and RCRs:
PECcorrected = PECcalculated * (local emission fraction) * (local WWTP flow rate fraction) * (local river flow rate fraction) * (local STP efficiency fraction)
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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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: Use in agrochemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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	
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		
Amount used	Daily amount per site	2,7 kg
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,9
	Emission or Release Factor: Water	0,01
	Emission or Release Factor: Soil	0,09
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	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Domestic sewage treatment is not assumed.	
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	98 hPa
Amount used	n.a. in tier 1 TRA MODEL	
Frequency and duration of use	Frequency of use	< 240 days/year
	Frequency of use	> 4 days/week
	Exposure duration per day	> 240 min
	Exposure duration per day	< 60 min(PROC8a, PROC13)
Technical conditions and measures to control dispersion from source towards the worker	Spraying/fogging by manual application Indoor. with local exhaust ventilation with potential for aerosol generation	Carry out in a vented booth or extracted enclosure. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.(PROC11)
	Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Spraying/fogging by manual application Indoor. with local exhaust ventilation with potential for aerosol generation	Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.(PROC11)
	Spraying/fogging by manual application Outdoor. with potential for aerosol generation	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.(PROC11)
	Wear suitable gloves tested to EN374.	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,66µg/L	0,00254
---	---	Marine water	PEC	0,117µg/L	0,0045
---	---	Fresh water	PEC	3,97µg/kg dry	0,00318

		sediment		weight (d.w.)	
---	---	Marine sediment	PEC	0,703µg/kg dry weight (d.w.)	0,00562
---	---	Soil	PEC	0,247µg/kg dry weight (d.w.)	0,00103
---	---	Sewage treatment plant (STP)	PEC	0,165µg/L	< 0,0001

ESVOC spERC 8.11a.v1 has been used to evaluate the exposure for the environment.

Workers

PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Inhalation worker exposure	12ppm	0,06
PROC2	---	Dermal worker exposure	0,822mg/kg/day	0,013
PROC4	---	Inhalation worker exposure	30ppm	0,15
PROC4	---	Dermal worker exposure	4,116mg/kg/day	0,065
PROC8a	---	Inhalation worker exposure	12ppm	0,06
PROC8a	---	Dermal worker exposure	8,226mg/kg/day	0,131
PROC8b	---	Inhalation worker exposure	30ppm	0,15
PROC8b	---	Dermal worker exposure	4,116mg/kg/day	0,065
PROC11	---	Inhalation worker exposure	30ppm	0,15
PROC11	---	Dermal worker exposure	12,857mg/kg/day	0,204
PROC13	---	Inhalation worker exposure	12ppm	0,06
PROC13	---	Dermal worker exposure	8,226mg/kg/day	0,131

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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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 12: Uses in coatings		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC9a: Coatings and paints, thinners, paint removers	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Daily amount per site	0,3 kg
	Fraction used at the main local source.	0,002
	Annually total	500 tonnes
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	90 %
	Emission or Release Factor: Water	90 %
	Emission or Release Factor: Soil	0 %
	Indoor use.	
	Processing temperature: Ambient temperature	
	Processing pressure: Ambient pressure.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of empty containers and wastes safely.
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Activity	spray application	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.

	Physical Form (at time of use)	liquid
	Vapour pressure	98 hPa
Amount used	Amount used per event	150 g
Frequency and duration of use	Frequency of use	0 - 5 events/year
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
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 percentage substance in the product up to 20 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	98 hPa
Amount used	Amount used per event	150 g
Frequency and duration of use	Frequency of use	0 - 5 events/year
	Exposure duration per event	60 min
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
2.4 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	98 hPa
Amount used	Amount used per event	150 g
Frequency and duration of use	Frequency of use	0 - 5 events/year
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers	Room size	20 m3

exposure		

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	98 hPa
Amount used	Amount used per event	150 g
Frequency and duration of use	Frequency of use	0 - 5 events/year
	Exposure duration per event	25 min
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	20 m3

3. Exposure estimation and reference to its source

Environment

ERC8a: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a	---	Fresh water	PEC	0,0044mg/L	0,017
ERC8a	---	Marine water	PEC	0,0004mg/L	0,017
ERC8a	---	Fresh water sediment	PEC	0,0059mg/kg	0,021
ERC8a	---	Marine sediment	PEC	0,0005mg/kg	0,002
ERC8a	---	Soil	PEC	0,0001mg/kg	< 0,001
ERC8a	---	Sewage treatment plant (STP)	PEC	0,0161mg/L	< 0,001
ERC8a	---	Total daily intake via local environment	PEC	0,0001mg/kg bw/day	< 0,001

Consumers

PC1, PC9a: Solvent rich, high solid, water borne paint, PC9a: Aerosol spray can: ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC1	---	Consumer inhalation exposure	29,9mg/m³	0,245
PC1	---	Consumer dermal exposure	0,04mg/kg bw/day	0,00108
PC9a: Solvent	---	Consumer inhalation	0,03mg/m³	0,000246

rich, high solid, water borne paint		exposure		
PC9a: Solvent rich, high solid, water borne paint	---	Consumer dermal exposure	0,02mg/kg bw/day	0,000541
PC9a: Aerosol spray can	---	Consumer inhalation exposure	1,3mg/m³	0,0107
PC9a: Aerosol spray can	---	Consumer dermal exposure	0,02mg/kg bw/day	0,000541

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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
For further information on the assessment method, see:
http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 13: 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation	
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		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
Amount used	Regional use tonnage:	0,1
	Fraction used at the main local source.	0,05
	Annually total	60000 tonnes
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	98 %
	Emission or Release Factor: Water	2 %
	Emission or Release Factor: Soil	0 %
	Indoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and	Air	Use containment measures to reduce fugitive emissions. (Efficiency: > 80 %)
	Air	Treatment of air emissions is not required for the

measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		purposes of REACH compliance but may be needed to comply with other environmental legislation, Use appropriate emission abatement equipment from LEV systems if required by local legislation., Use of technical measures such as catalytic or thermal oxidation to reduce emissions to air.
	Water	Onsite wastewater treatment required, If discharging to domestic sewage treatment plant, no onsite wastewater treatment required., Do not release wastewater directly into environment.
	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 88 %)
	Bund storage facilities to prevent soil and water pollution in the event of spillage. Prevent environmental discharge consistent with regulatory requirements.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	87 %
	Sludge Treatment	Disposal or recovery
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Treat all waste as hazardous waste
	Disposal methods	Hazardous waste incineration., Dispose of waste or used sacks/containers according to local regulations. (Efficiency: 99,98 %)

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, 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	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures	Handle substance within a closed system.(PROC1)
	Bulk transfers Non-dedicated facility	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container. Locate bulk storage outdoors.(PROC8a)
	Bulk transfers Dedicated facility	Ensure material transfers are under containment or extract ventilation.

		Provide extract ventilation to points where emissions occur. Clear transfer lines prior to de-coupling. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Locate bulk storage outdoors.(PROC8b)
	Film formation - force drying (50-100°C). Stoving (>100°C). UV/EB radiation curing	Use ventilation to extract vapours from freshly coated articles/objects.(PROC2)
	Film formation - air drying	Use ventilation to extract vapours from freshly coated articles/objects.(PROC4)
	Provide extract ventilation to points where emissions occur.(PROC5)	
	Carry out in a vented booth or extracted enclosure.(Automatic/robotic PROC7)	
	Carry out in a vented booth or extracted enclosure.(Manual PROC7)	
	Provide extract ventilation to material transfer points and other openings.(PROC8a)	
	Ensure material transfers are under containment or extract ventilation.(PROC8b)	
	Indoor.	Provide extract ventilation to points where emissions occur.(PROC10)
	Indoor.	Provide extract ventilation to points where emissions occur.(PROC13)
	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC14)	
Organisational measures to prevent /limit releases, dispersion and exposure	Bulk transfers Non-dedicated facility	If technical measures not practical: Avoid carrying out operation for more than 1 hour.(PROC8a)
	Bulk transfers Dedicated facility	If technical measures not practical: Avoid carrying out operation for more than 1 hour.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	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. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Butyl rubber gloves offer good protection	
	Wear respiratory protection Wear face protection. Wear a full face respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.(Manual PROC7)	
	with local exhaust ventilation	(Efficiency: 90 %)(PROC2, PROC5, PROC8a, PROC9, PROC13, PROC14)
	with local exhaust ventilation	(Efficiency: 95 %)(PROC7)
	with local exhaust ventilation	(Efficiency: 97 %)(PROC8b)

3. Exposure estimation and reference to its source

Environment

ERC4: ECETOC TRA

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	---	Fresh water sediment	PEC	0,718mg/kg dry weight (d.w.)	---
ERC4	---	Marine water	PEC	0,012mg/L	---
ERC4	---	Marine sediment	PEC	0,0719mg/kg dry weight (d.w.)	---
ERC4	180 days	Soil	PEC	0,0413mg/kg dry weight (d.w.)	---
ERC4	30 days	Soil	PEC	0,082mg/kg dry weight (d.w.)	---
ERC4	180 days	Grassland	PEC	0,0435mg/kg dry weight (d.w.)	---
ERC4	Annual average	Air	PEC	0,224mg/m³	---

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15: Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	General exposures (closed systems)	Inhalation worker exposure	0,01ppm	< 0,001
PROC1	General exposures (closed systems)	Dermal worker exposure	0,03mg/kg bw/day	< 0,001
PROC2	General exposures (closed systems), Use in contained systems, with sample collection	Inhalation worker exposure	25ppm	0,125
PROC2	General exposures (closed systems), Use in contained systems, with sample collection	Consumer dermal exposure	1,3mg/kg bw/day	0,022
PROC2	Film formation - force drying (50-100°C). Stoving (>100°C). UV/EB radiation curing	Inhalation worker exposure	12,5ppm	0,063
PROC2	Film formation - force drying (50-100°C). Stoving (>100°C). UV/EB	Dermal worker exposure	1,3mg/kg bw/day	0,022

	radiation curing			
PROC3	Mixing operations (closed systems), General exposures	Inhalation worker exposure	50ppm	0,25
PROC3	Mixing operations (closed systems), General exposures	Dermal worker exposure	0,69mg/kg bw/day	0,011
PROC4	Film formation - air drying	Inhalation worker exposure	10ppm	0,05
PROC4	Film formation - air drying	Dermal worker exposure	6,8mg/kg bw/day	0,109
PROC5	Preparation of material for application, Mixing operations (open systems)	Inhalation worker exposure	25ppm	0,125
PROC5	Preparation of material for application, Mixing operations (open systems)	Dermal worker exposure	14mg/kg bw/day	0,218
PROC7	Spraying (automatic/robotic)	Inhalation worker exposure	25ppm	0,125
PROC7	Spraying (automatic/robotic)	Dermal worker exposure	43mg/kg bw/day	0,68
PROC7	Spraying	Inhalation worker exposure	25ppm	0,125
PROC7	Spraying	Dermal worker exposure	43mg/kg bw/day	0,68
PROC8a	Non-dedicated facility	Dermal worker exposure	14mg/kg bw/day	0,218
PROC8a	Non-dedicated facility	Inhalation worker exposure	25ppm	0,125
PROC8b	material transfers, Dedicated facility	Dermal worker exposure	14mg/kg bw/day	0,218
PROC8b	material transfers, Dedicated facility	Inhalation worker exposure	4,5ppm	0,023
PROC10	Roller, spreader, flow application	Dermal worker exposure	27mg/kg bw/day	0,435
PROC10	Roller, spreader, flow application	Inhalation worker exposure	25ppm	0,125
PROC13	Dipping, immersion and pouring	Dermal worker exposure	14mg/kg bw/day	0,218
PROC13	Dipping, immersion and pouring	Inhalation worker exposure	25ppm	0,125
PROC15	Laboratory activities	Dermal worker exposure	0,34mg/kg bw/day	0,005
PROC15	Laboratory activities	Inhalation worker exposure	50ppm	0,25
PROC9	material transfers, Drum/batch transfers, Transfer from/pouring from containers	Inhalation worker exposure	20ppm	0,1

PROC9	material transfers, Drum/batch transfers, Transfer from/pouring from containers	Dermal worker exposure	6,8mg/kg bw/day	0,109
PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation	Dermal worker exposure	3,4mg/kg bw/day	0,054
PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation	Inhalation worker exposure	25ppm	0,125

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

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.
Risk Management Measures are based on qualitative risk characterisation.
Guidance is based on assumed operating conditions which may not be applicable to all sites. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra

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	Distribution of substance	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15	1, 2, 4, 6a	NA	ES7846
2	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
3	Polymer processing	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15	6d	NA	ES7684
4	Polymer processing	22	NA	NA	1, 2, 8a, 8b, 9, 14	8a, 8c, 8d, 8f	NA	ES7743
5	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 19	4	NA	ES7686
6	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 19	8a, 8d	NA	ES7745
7	Use in Cleaning Agents	21	NA	3, 4, 9a, 9b, 9c, 24, 35, 38	NA	8a, 8d	NA	ES8831
8	Use in laboratories	3	NA	NA	10, 15, 19	4	NA	ES7670
9	Use in laboratories	22	NA	NA	10, 15, 19	8a	NA	ES7735
10	Use in de-icing and anti-icing applications	22	NA	NA	1, 2, 8b, 11, 19	8d	NA	ES7751
11	Use in de-icing and anti-icing applications	21	NA	4	NA	8d	NA	ES8832
12	Use in oil and gas field drilling and production operations	3	NA	NA	1, 2, 3, 4, 8a, 8b	4	NA	ES7688
13	Use in oil and gas field drilling and production operations	22	NA	NA	1, 2, 3, 4, 8a, 8b	8d	NA	ES7747
14	Explosives manufacture & use	22	NA	NA	1, 3, 5, 8a, 8b	8d	NA	ES7753
15	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
16	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15, 19	4	NA	ES7672

17	Use as binders and release agents	3	NA	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13	5	NA	ES7678
18	Rubber production and processing	3	NA	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14	6d	NA	ES7680
19	Polymer production	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15	6d	NA	ES7682
20	Use as blowing agents	3	NA	NA	1, 2, 3, 8b, 9, 12	4, 10a	NA	ES7690
21	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
22	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
23	Polymer production	22	NA	NA	1, 2, 8a, 8b, 9, 14	8a, 8c, 8d, 8f	NA	ES7741
24	Use in agrochemicals	22	NA	NA	1, 2, 4, 8a, 8b, 11, 13, 19	8a, 8d	NA	ES7749
25	Uses in coatings	21	NA	1, 4, 9a, 9b, 9c, 15, 24, 31	NA	8a, 8c, 8d, 8f	NA	ES8830

1. Short title of Exposure Scenario 1: 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, pelletisation 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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, pelletisation 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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, pelletisation 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	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: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15: 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, PROC8a, PROC10, PROC13	---	Inhalation	250ppm	0,50
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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, pelletisation	
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

PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC14: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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	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: 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19: 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, PROC19	---	Inhalation	250ppm	0,50
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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	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: 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19: 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, 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	---	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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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 (34m³) 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	liquid

	use)	
	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 (34m³) 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 (34m³) 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	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient	

exposure	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 (34m³) 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 (34m³) 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	Covers percentage substance in the product up to 5 %.

	Mixture/Article	
	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

Human factors not influenced by risk management	Frequency of use	1 Times per day
	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

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 8: 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 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

PROC10, PROC15, PROC19: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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 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.	
	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

PROC10, PROC15, PROC19: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Air	Closed system, or, Treated by scrubbers
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	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, 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 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 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

PROC1, PROC2, PROC8b, PROC11, PROC19: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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 conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34m^3) under typical ventilation.	
2.3 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the	Covers concentrations up to 10%

	Substance in Mixture/Article	
	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 (34m³) 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 (34m³) 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

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 12: 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

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 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

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are

within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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

PROC1, PROC3, PROC5, PROC8a: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:

ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 15: 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, pelletisation 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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	Covers percentage substance in the product up to 100 % (unless stated differently).

	Mixture/Article	
	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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15, PROC19: 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, PROC10, PROC13, PROC19	---	Inhalation	250ppm	0,50
PROC5, PROC8a, PROC13	---	Dermal	13,71mg/kg/day	0,07
PROC7	with local exhaust	Inhalation	25ppm	0,05

	ventilation, (95% efficiency)			
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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, pelletisation
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 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, PROC14		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14: 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, 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

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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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, pelletisation 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	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: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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	Locate bulk storage outdoors. Provide a good standard of general ventilation. Natural ventilation is from doors,	

from source towards the worker	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

PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19: 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 substance in product: 5% - 25%	Dermal	64,28mg/kg/day	0,35
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 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 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, 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

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11: 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 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, Concentration of substance in product: 5%	Inhalation	252ppm	0,50

	- 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
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 23: 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, pelletisation	
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

PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC14: 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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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 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 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, 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 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 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

PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13, PROC19: 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%	Inhalation	100ppm	0,20

	efficiency			
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

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.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES
Environment
For scaling see ECT Tool:
ECT: http://www.reachcentrum.eu/en/consortiummanagement/consortia-under-reach/phenol-derivatives-reachconsortium/phenol-derivatives-dossiers.aspx
Health
For scaling see: GES Worker Chemical Safety Assessment (CSA) Template (http://cefic.org/templates/shwPublications.asp?HID=750)

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: 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 (34m³) 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 (34m³) 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	Room size	34 m3

conditions affecting consumers exposure	Covers use in a one car garage (34m³) 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 (34m³) 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

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4	NA	ES600
2	Distribution of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2, 3, 4, 5, 6a, 7	NA	ES628
3	Formulation & (re)packing of substances and mixtures	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES630
4	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	4	NA	ES632
5	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	NA	ES229
6	Uses in coatings	21	NA	1, 4, 8, 9a, 9b, 15, 18, 23, 24, 31, 34	NA	8a, 8d	NA	ES363
7	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES636
8	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8b, 8d	NA	ES319
9	Use in Cleaning Agents	21	NA	9a, 9b, 24, 35	NA	8a, 8d	NA	ES392
10	Use in agrochemicals	22	NA	NA	1, 2, 4, 8a, 8b, 11, 13	8a, 8d	NA	ES322
11	Use in agrochemicals	21	NA	12, 27	NA	8a, 8d	NA	ES481
12	Use as a fuel	3	NA	NA	1, 2, 3, 8a, 8b, 16	7	NA	ES189
13	Use as a fuel	22	NA	NA	1, 2, 3, 8a, 8b, 16	8b, 8e, 9a, 9b	NA	ES326
14	Use as a fuel	21	NA	13	NA	9a, 9b	NA	ES485
15	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES177
16	Use as lubricants	21	NA	1, 24, 31	NA	8a, 8d, 9a, 9b	NA	ES471
17	Use in laboratories	3	NA	NA	10, 15	2, 4	NA	ES217

18	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES329
19	Use in metal working fluids / rolling oils	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17	4	NA	ES183

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
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
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 PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Manufacture of substance or use as an intermediate, process chemical or extracting agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

2.1 Contributing scenario controlling environmental exposure for: ERC1

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, 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
	Assumes use at not more than 20°C above ambient temperature.	
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	Storage	Store substance within a closed system.(PROC1, PROC2)
	Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.(PROC8a)

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
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 PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC3: Formulation in materials ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC7: Industrial use of substances in closed systems
Activity	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC1

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, 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
	Assumes use at not more than 20°C above ambient temperature.	

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	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Clear transfer lines prior to de-coupling.(PROC4)
	Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.(PROC8a)
	Bulk transfers (closed systems)	Handle substance within a closed system.(PROC8b)
	Drum and small package filling	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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) 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 PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations
Activity	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC2

No exposure assessment presented for the environment.

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

Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20°C above ambient temperature.	
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	General exposures (closed systems)	Handle substance within a closed system.(PROC2, PROC3)
	Storage	Store substance within a closed system. Transfer via enclosed lines. Locate bulk storage outdoors.(PROC1, PROC2)

	Provide extraction ventilation at points where emissions occur.(PROC5, PROC14)	
	Transfer from/pouring from containers Manual	Use drum pumps or carefully pour from container.(PROC8a, PROC8b)
	Drum/batch transfers	Drain down and flush system prior to equipment opening or maintenance.(PROC8a)
	Drum and small package filling	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5, PROC14)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: 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 PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC4

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, 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
	Assumes use at not more than 20°C above ambient temperature.	

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	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Ensure material transfers are under containment or extract ventilation.(PROC2, PROC3)	
	Provide extraction ventilation at points where emissions occur.(PROC4, PROC5, PROC13, PROC14, PROC15)	
	Spraying (automatic/robotic)	Carry out in a vented booth provided with laminar airflow.(PROC7)
	Spraying/fogging by manual application	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7)
	Clear transfer lines prior to de-coupling.(PROC8a, PROC8b)	
	Material transfers Drum/batch transfers Transfer from/pouring from containers	Provide extract ventilation to material transfer points and other openings.(PROC9)
	Roller, spreader, flow application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC10)
	Production of preparations or articles by tabletting, compression, extrusion, pelettisation	Avoid manual contact with wet work pieces.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Spraying/fogging by manual application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: 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 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 ERC8d: Wide dispersive outdoor use of processing aids in open systems
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, 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
	Assumes use at not more than 20°C above ambient temperature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions	Avoid carrying out operation for more than 4 hours.	

affecting workers exposure		
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems) Filling / preparation of equipment from drums or containers	Handle substance within a closed system.(PROC1, PROC2)
	Filling / preparation of equipment from drums or containers	Ensure material transfers are under containment or extract ventilation.(PROC2)
	Preparation of material for application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC3)
	Film formation - air drying Indoor	Provide extraction ventilation at points where emissions occur. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC4)
	Preparation of material for application Indoor	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC5)
	Drum/batch transfers	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.(PROC8a)
	Material transfers Drum/batch transfers	Provide extract ventilation to material transfer points and other openings.(PROC8b)
	Roller, spreader, flow application Indoor	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.(PROC10)
	Spraying/fogging by manual application Indoor	Carry out in a vented booth or extracted enclosure.(PROC11)
	Dipping, immersion and pouring Indoor	Provide extraction ventilation at points where emissions occur. Avoid manual contact with wet work pieces.(PROC13)
	Dipping, immersion and pouring Outdoor.	Ensure operation is undertaken outdoors. Avoid manual contact with wet work pieces.(PROC13)
	Laboratory activities	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC15)
	Hand application - finger paints, pastels, Adhesives Indoor	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.(PROC19)
	Hand application - finger	Ensure operation is undertaken outdoors.(PROC19)

	paints, pastels, Adhesives Outdoor.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Film formation - air drying Outdoor.	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Preparation of material for application Indoor	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC5)
	Drum/batch transfers	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
	Spraying/fogging by manual application Outdoor.	Avoid carrying out operation for more than 4 hours.(PROC11)
	Preparation of material for application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5, PROC10, PROC11, PROC19)
	Spraying/fogging by manual application Hand application - finger paints, pastels, Adhesives Outdoor.	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11, PROC19)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: 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 PC8: Biocidal products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC31: Polishes and wax blends PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
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
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Amount used	Amount used per event	9 g
Frequency and duration of use	Exposure duration per day	4 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational	Room size	20 m3

conditions affecting consumers exposure	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
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	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,390 kg
Frequency and duration of use	Exposure duration per day	6 h
	Frequency of use	1 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm^2
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.5 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Exposure duration per	4 h

	day	
	Frequency of use	6 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.6 Contributing scenario controlling consumer exposure for: PC1: Sealants

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Exposure duration per day	1 h
	Frequency of use	365 days/year
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	34 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.7 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	> 10 kPa

Amount used	Amount used per event	0,5 g
Frequency and duration of use	Exposure duration per day	0,02 h
	Frequency of use	365 days/year
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	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.8 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2 kg
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	365 days/year
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
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.9 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids		
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	> 10 Pa
Amount used	Amount used per event	27 g
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	128 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.10 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	128 days/year
Human factors not influenced by	Exposed skin areas	Covers skin contact area up to 428 cm²

risk management		
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per day	2,2 h
	Frequency of use	6 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa

Amount used	Amount used per event	0,215 kg
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	2 days/year
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	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.13 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	3 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.15 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85 g
Frequency and duration of use	Exposure duration per day	4 h
	Frequency of use	12 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.16 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	12 days/year

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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.17 Contributing scenario controlling consumer exposure for: PC15: Solvent rich, high solid, water borne paint

Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per day	2,2 h
	Frequency of use	6 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.18 Contributing scenario controlling consumer exposure for: PC15: Aerosol spray can

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,215 kg

Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	2 days/year
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	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.19 Contributing scenario controlling consumer exposure for: PC15: Removers (paint-, glue-, wall paper-, sealant remover)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	3 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.20 Contributing scenario controlling consumer exposure for: PC18

Product characteristics	Concentration of the	Concentration of substance in product : 0% - 10%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	40 g
Frequency and duration of use	Exposure duration per day	2,2 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 71,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.21 Contributing scenario controlling consumer exposure for: PC23: Polishes, wax/cream (floor, furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	56 g
Frequency and duration of use	Exposure duration per day	1,23 h
	Frequency of use	29 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers	Room size	20 m3

exposure	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.22 Contributing scenario controlling consumer exposure for: PC23: Polishes, spray (furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	56 g
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	8 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.23 Contributing scenario controlling consumer exposure for: PC24: Liquids

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 Pa
Amount used	Amount used per event	2,2 kg

Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	4 days/year
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
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.24 Contributing scenario controlling consumer exposure for: PC24: Pastes

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Exposure duration per day	6 h
	Frequency of use	10 days/year
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.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.25 Contributing scenario controlling consumer exposure for: PC24: Sprays

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa

Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	6 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.26 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	142 g
Frequency and duration of use	Exposure duration per day	1,23 h
	Frequency of use	29 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	No specific risk management measure identified beyond those operational conditions stated.	

protection and hygiene)		

2.27 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	8 days/year
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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.28 Contributing scenario controlling consumer exposure for: PC34

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,115 kg
Frequency and duration of use	Exposure duration per day	1 h
	Frequency of use	365 days/year

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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

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

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.

1. Short title of Exposure Scenario 7: 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 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

2.1 Contributing scenario controlling environmental exposure for: ERC4

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, 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
	Assumes use at not more than 20°C above ambient temperature.	
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	Filling / preparation of equipment from drums or containers	Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Provide extraction ventilation at points where emissions occur.(PROC4, PROC13)	

	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7, PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2)
	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC3, PROC7, PROC10)
	Wear a respirator conforming to EN140 with Type A filter or better.(PROC7, PROC10)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: 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 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 PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring
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 ERC8d: Wide dispersive outdoor use of processing aids in open systems
Activity	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

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

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, 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
	Assumes use at not more than 20°C above ambient temperature.	
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	Surfaces cleaning Manual	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.(PROC10)

	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	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.(PROC4)
	Cleaning of medical devices	Provide extraction ventilation at points where emissions occur.(PROC4)
	Filling / preparation of equipment from drums or containers	Ensure operation is undertaken outdoors.(PROC8a)
	Filling / preparation of equipment from drums or containers	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.(PROC8b)
	Cleaning with low-pressure washers Rolling, Brushing	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.(PROC10)
	Surfaces cleaning Manual	Ensure doors and windows are opened.(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc	Provide extraction ventilation at points where emissions occur.(PROC10)
	Cleaning with high pressure washers Spraying Indoor	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.(PROC11)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Surfaces cleaning Manual	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Automated process with (semi) closed systems	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2, PROC3)
	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Application of cleaning products in closed systems	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A

	filter or better.(PROC4)
Cleaning of medical devices	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
Filling / preparation of equipment from drums or containers	Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
Filling / preparation of equipment from drums or containers	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC8b)
Surfaces cleaning Manual	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
Ad hoc manual application via trigger sprays, dipping, etc	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
Cleaning with high pressure washers Spraying Outdoor.	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: Use in Cleaning Agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based 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
Activity	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	No specific risk management measure identified beyond those operational conditions stated.	

protection and hygiene)		
2.3 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)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,215 kg
Frequency and duration of use	Exposure duration per event	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 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.4 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	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.5 Contributing scenario controlling consumer exposure for: PC9b

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Exposure duration per event	2,2 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.	
Conditions and measures related	No specific risk management measure identified beyond those operational	

to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	conditions stated.	
2.8 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration per event	0,17 min
	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.9 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	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	27 g

Frequency and duration of use	Exposure duration per event	0,33 min
	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.10 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Exposure duration per event	0,17 min
	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 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

1. Short title of Exposure Scenario 10: 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
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
Activity	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, 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
	Assumes use at not more than 20℃ above ambient temperature.	
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	Storage	Store substance within a closed system.(PROC1, PROC2)
	Mixing operations (open systems) Transfer from/pouring from containers Ad hoc manual application via trigger sprays, dipping, etc	Ensure operation is undertaken outdoors.(PROC4, PROC8b, PROC13)

	Disposal of wastes	Ensure operation is undertaken outdoors.(PROC8a)
	Spraying (automatic/robotic)	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.(PROC11)
Organisational measures to prevent /limit releases, dispersion and exposure	Disposal of wastes	Avoid carrying out operation for more than 1 hour.(PROC8a)
	Equipment cleaning and maintenance	Avoid carrying out operation for more than 1 hour.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Disposal of wastes	Wear suitable gloves tested to EN374.(PROC8a)
	Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC8a)
	Spraying/fogging by machine application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Ad hoc manual application via trigger sprays, dipping, etc	Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with Type A filter or better.(PROC13)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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: Use in agrochemicals

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC12: Lawn and garden preparations, including fertilizers (- Fertilizers) PC27: Plant protection 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
Activity	Covers the consumer use of agrochemicals in liquid and solid forms.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC12, PC27

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	50 g
Frequency and duration of use	Exposure duration per event	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.	
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 2.5%(PC27)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

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

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.

1. Short title of Exposure Scenario 12: Use as a fuel

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) 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 PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
Environmental Release Categories	ERC7: Industrial use of substances in closed systems
Activity	Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.1 Contributing scenario controlling environmental exposure for: ERC7

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16

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
	Assumes use at not more than 20°C above ambient temperature.	
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	Store substance within a closed system. Transfer via enclosed lines. Ensure operation is undertaken outdoors.(PROC1, PROC2)	
	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC16)	
	Drain down and flush system prior to equipment opening or maintenance. Apply vessel entry procedures including use of supplied compressed air.(PROC8a)	
	Bulk transfers	Handle substance within a closed system.

	Drum/batch transfers	Use drum pumps or carefully pour from container.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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 as a fuel

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) 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 PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems
Activity	Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.1 Contributing scenario controlling environmental exposure for: ERC8b, ERC8e, ERC9a, ERC9b

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16

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
	Assumes use at not more than 20°C above ambient temperature.	
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	Storage	Store substance within a closed system.(PROC1, PROC2)
	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC16)	
	Drain down and flush system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)	
	Vessel and container cleaning	Apply vessel entry procedures including use of supplied compressed air.(PROC8a)

	Bulk transfers	Handle substance within a closed system. Clear transfer lines prior to de-coupling.(PROC8b)
	Drum/batch transfers	Use drum pumps or carefully pour from container.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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 as a fuel

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC13: Fuels
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems
Activity	Covers consumer uses in liquid fuels.

2.1 Contributing scenario controlling environmental exposure for: ERC9a

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC13: Liquid: Automotive Refuelling, PC13: Liquid: Scooter Refuelling

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
Amount used	Amount used per event	37,5 kg (PC13)
	Amount used per event	3,75 kg (PC13)
Frequency and duration of use	Exposure duration per event	0,05 h(PC13)
	Exposure duration per event	0,03 h(PC13)
	Frequency of use	52 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 210 cm^2
Other given operational conditions affecting consumers exposure	Room size	100 m3
	Ventilation rate per hour	0,6
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.3 Contributing scenario controlling consumer exposure for: PC13: Liquid: Garden Equipment -

Use, PC13: Liquid: Garden Equipment - Refueling		
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
Amount used	Amount used per event	0,750 kg
Frequency and duration of use	Exposure duration per event	2 h(PC13)
	Exposure duration per event	0,03 h(PC13)
	Frequency of use	26 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 420 cm²
Other given operational conditions affecting consumers exposure	Room size	100 m3(PC13)
	Ventilation rate per hour	0,6(PC13)
	Covers use under typical household ventilation.(PC13)	
	Room size	34 m3(PC13)
	Ventilation rate per hour	1,5(PC13)
	Covers use in a one car garage (34 m3) under typical ventilation.(PC13)	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.4 Contributing scenario controlling consumer exposure for: PC13: Liquid: Lamp oil		
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
Amount used	Amount used per event	0,100 kg

Frequency and duration of use	Exposure duration per event	0,01 h
	Frequency of use	1 Times per day
	Frequency of use	52 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm^2
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

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

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.

1. Short title of Exposure Scenario 15: Use as lubricants

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 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 PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC7: Industrial use of substances in closed systems
Activity	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC7

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18

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
	Assumes use at not more than 20°C above ambient temperature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature).(PROC8b)	

Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Maintenance of small items	Avoid carrying out operation for more than 4 hours.(PROC8a)
	Filling / preparation of equipment from drums or containers	Transfer via enclosed lines. Use drum pumps or carefully pour from container.(PROC8a, PROC8b)
	Maintenance (of larger plant items) and machine set up	Clear lines prior to de-coupling. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.(PROC8b)
	Remanufacture of reject articles	Avoid carrying out operation for more than 4 hours.(PROC9)
	Ensure material transfers are under containment or extract ventilation.(PROC9)	
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)	
	Restrict area of openings to equipment.(PROC13, PROC17, PROC18)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Maintenance (of larger plant items) and machine set up	Wear suitable gloves tested to EN374.(PROC8b)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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 lubricants

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC24: Lubricants, greases, release products PC31: Polishes and wax blends
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 ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems
Activity	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	9 g
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	No specific risk management measure identified beyond those operational conditions stated.	

protection and hygiene)		
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	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,390 kg
Frequency and duration of use	Exposure duration per event	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 cm^2
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Exposure duration per event	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 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
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 ....

2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids

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 Pa

Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Exposure duration per event	6 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.	
Conditions and measures related to protection of consumer (e.g.	No specific risk management measure identified beyond those operational conditions stated.	

behavioural advice, personal protection and hygiene)		
2.8 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration per event	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.9 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	142 g
Frequency and duration of use	Exposure duration per	1,23 h

	event	
	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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.10 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Exposure duration per event	0,33 h
	Frequency of use	8 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
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

1. Short title of Exposure Scenario 17: 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	
Environmental Release Categories	ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
Activity	Use of the substance within laboratory settings, including material transfers and equipment cleaning..	
2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC10, 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
	Assumes use at not more than 20℃ above ambient temperature.	
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	cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure the ventilation system is regularly maintained and tested.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented for the environment.		
Workers		

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems
Activity	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

2.1 Contributing scenario controlling environmental exposure for: ERC8a

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC10, 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
	Assumes use at not more than 20℃ above ambient temperature.	
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	cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure the ventilation system is regularly maintained and tested.	
	cleaning	Avoid carrying out operation for more than 1 hour.(PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

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 metal working fluids / rolling oils

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 PROC17: Lubrication at high energy conditions and in partly open process
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Covers the use in formulated MWFs (MWFs)/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

2.1 Contributing scenario controlling environmental exposure for: ERC4

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17

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
	Assumes use at not more than 20°C above ambient temperature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and	Handle substance within a closed system.(PROC1, PROC2, PROC3)	

measures to control dispersion from source towards the worker	Filling / preparation of equipment from drums or containers	Use drum pumps or carefully pour from container.(PROC5, PROC8b, PROC9)
	Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Bulk transfers	Provide enhanced general ventilation by mechanical means. or Ensure operation is undertaken outdoors. Clear transfer lines prior to de-coupling.(PROC8b)
	Process sampling	Use dedicated equipment.(PROC8b)
	Provide enhanced general ventilation by mechanical means.(PROC10, PROC13)	
	Metal machining operations	Provide extraction ventilation at points where emissions occur. Restrict area of openings to equipment.(PROC17)
	Semi-automated metal rolling/forming	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC17)
Organisational measures to prevent /limit releases, dispersion and exposure	Bulk transfers	Avoid carrying out operation for more than 1 hour.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

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.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.