deffner & Johann

Supplies for RESTORATION | CONSERVATION | ART HANDLING – SINCE 1880

SAFETY DATA SHEET

2300 006 | METHYLETHYLKETON (MEK)

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

Methylethylketon

Version 5.0 Print Date 05.12.2019

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

1.1. Product identifier

Trade name	:	Methylethylketon
Substance name	:	butanone
Index-No.	:	606-002-00-3
CAS-No.	:	78-93-3
EC-No.	:	201-159-0
EU REACH-Reg. No.	:	01-2119457290-43-xxxx

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

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

1.3. Details of the supplier of the safety data sheet

Company	:	Deffner & Johann GmbH Mühläckerstraße 13 D-97520 Röthlein
Telephone	:	+49 9723 9350-0
Telefax	:	+49 9723 9350-25
E-mail address	:	info@deffner-johann.de
Responsible/issuing person	:	

1.4. Emergency telephone number

Emergency telephone number	:	+49 9723 9350-0 (Mo. - Fr.: 8:00 - 15:00 Uhr)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

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

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

Most important adverse effects

Human Health : See section 11 for toxicological information.

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

Potential environmental effects : See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements :

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

Precautionary statements

Prevention :

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ eye protection/ face protection.

Response :

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P370 + P378	In case of fire: Use dry sand, dry chemical

or alcohol-resistant foam to extinguish.

Additional Labelling:

EUH066 Repeated exposure may cause skin dryness or cracking.

Hazardous components which must be listed on the label:

• butanone

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical nature : Substance

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
butanone			
Index-No. : 606-002-00-3 CAS-No. : 78-93-3 EC-No. : 201-159-0 EU REACH-Reg. No. : 01-2119457290-43-xxxx	100	Flam. Liq.2 Eye Irrit.2 STOT SE3	H225 H319 H336

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Remove from exposure, lie down. Take off all contaminated clothing immediately. If symptoms call a physician.

If inhaled : Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position. Consult a physician after significant exposure.

In case of skin contact : Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. If eye irritation persists, consult a specialist. Go to an ophthalmic hospital if possible.
If swallowed	: Rinse mouth with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

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

Symptoms	: Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. See Section 11 for more detailed information on health effects and symptoms.
Effects	: See Section 11 for more detailed information on health effects and symptoms.

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

Treatment	: Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground. Vapours may form explosive mixtures with air. Flash back possible over considerable distance.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO_2)

5.3. Advice for firefighters

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

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

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Keep in an area equipped with solvent resistant flooring.

Advice on protection against fire and explosion	:	Keep away from sources of ignition - No smoking. The vapour may be invisible, heavier than air and spread along ground. Vapours may form explosive mixtures with air. Take measures to prevent the build up of electrostatic charge. Use only in an area containing explosion proof equipment.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep away from direct sunlight. Keep in a well-ventilated place.
Advice on common storage	:	Incompatible with oxidizing agents. Do not store together with oxidizing and self-igniting products. Keep away from food, drink and animal feedingstuffs.
German storage class	:	3 Flammable liquids
Suitable packaging materials	:	Stainless steel
Unsuitable packaging materials	:	, Aluminium, Ethylene-propylene-diene monomer (EPDM), Polypropylene, PVC, polyethylene containers

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	**butanone**	**CAS-No. 78-93-3**

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

DNEL Workers, Long-term - systemic effects, Skin contact	:	1161 mg/kg bw/day
DNEL Workers, Long-term - systemic effects, Inhalation	:	600 mg/m3
DNEL Consumers, Long-term - systemic effects, Skin contact	:	412 mg/kg bw/day
DNEL Consumers, Long-term - systemic effects, Inhalation	:	106 mg/m3
DNEL Consumers, Long-term - systemic effects, Ingestion	:	31 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	55,8 mg/l
Marine water	:	55,8 mg/l
Intermittent releases	:	55,8 mg/l
Sewage treatment plant (STP)	:	709 mg/l
Sediment	:	284,7 mg/kg dry weight (d.w.)
Soil	:	22,5 mg/kg
Secondary poisoning	:	1000 mg/kg food

Other Occupational Exposure Limit Values

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, Time Weighted Average (TWA):
200 ppm, 600 mg/m3
Indicative

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, Short Term Exposure Limit (STEL):
300 ppm, 900 mg/m3
Indicative

Germany. TRGS 900, Occupational Exposure Limits (AGW), Skin designation:
Can be absorbed through the skin.

Germany. TRGS 900, Occupational Exposure Limits (AGW), Exposure limit(s):
200 ppm, 600 mg/m3, (1)
If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).

Biological Exposure Indices

Germany. TRGS 903, BGW List (Biological Limit Values), 2-butanone, Urine
2 mg/l, Sampling time: End of shift.

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	In case of insufficient ventilation, wear suitable respiratory equipment. When aerosol or mist is formed use suitable respiratory protection. Respiratory protection complying with EN 141. Recommended Filter type:A

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	butyl-rubber
Break through time	:	>= 1 h
Glove thickness	:	0,5 mm

Eye protection

Advice	:	Goggles giving complete protection to the eyes

Skin and body protection

Advice	:	Solvent resistant protective clothing

Environmental exposure controls

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	colourless
Odour	:	stinging
Odour Threshold	:	no data available
pH	:	no data available
Melting point/range	:	-86 °C
Boiling point/boiling range	:	78 - 81 °C (ASTM D1078)

Flash point	:	-6 °C Information taken from reference works and the literature.
Evaporation rate	:	7,7
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	11,5 %(V)
Lower explosion limit	:	1 %(V)
Vapour pressure	:	10,4 kPa (20 °C)
Relative vapour density	:	1,15 (20 °C)
Relative density	:	0,805 - 0,807
Density	:	0,804 - 0,807 g/cm3 (20 °C)
Water solubility	:	miscible
Partition coefficient: n-octanol/water	:	log Kow 0,3 Literature value
Auto-ignition temperature	:	404 °C Literature value
Thermal decomposition	:	no data available
Viscosity, dynamic	:	0,42 mPa.s (20 °C)
Viscosity, kinematic	:	0,51 mm2/s (20 °C) (ASTM D 7042)
Explosivity	:	Product is not explosive.Formation of explosive air/vapour mixtures is possible.
Oxidizing properties	:	not oxidising

9.2. Other information

Molecular weight	:	72 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : May form explosive peroxides. Formation of explosive

air/vapour mixtures is possible.

10.4. Conditions to avoid

Conditions to avoid : Heat, flames and sparks.
Thermal decomposition : no data available

10.5. Incompatible materials

Materials to avoid : Strong oxidizing agents, Strong acids, Aluminium

10.6. Hazardous decomposition products

Hazardous decomposition products : Under fire conditions: Carbon oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component:	butanone	CAS-No. 78-93-3
Acute toxicity		
Oral		
LD50	:	> 2193 mg/kg (Rat) (OECD Test Guideline 423)
Inhalation		
LC50	:	34 mg/l (Rat; 4 h)
Dermal		
LD50	:	> 5000 mg/kg (Rabbit) (OECD Test Guideline 402)
Irritation		
Skin		
Result	:	No skin irritation (Rabbit; 4 h) (OECD Test Guideline 404)Repeated exposure may cause skin dryness or cracking.
Eyes		
Result	:	Eye irritation (Rabbit) (OECD - Guideline 405)
Sensitisation		
Result	:	not sensitizing (Buehler Test; Dermal; Guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

Carcinogenicity	:	Not expected to be carcinogenic.
Mutagenicity	:	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects
Teratogenicity	:	Animal testing did not show any effects on foetal development.
Reproductive toxicity	:	Not expected to impair fertility. Read-across (Analogy)

Genotoxicity in vitro

Result	:	negative (rat hepatocytes) (OECD Test Guideline 473) negative (Mouse Lymphoma Cells) (OECD Test Guideline 476) negative (Salmonella typhimurium) (OECD Test Guideline 471)

Genotoxicity in vivo

Result	:	negative (Mouse, male and female) (OECD Test Guideline 474)

Teratogenicity

NOAEC Develop.	:	1.002 ppm (Rat)(18 d; 7 hours/day)(OECD Test Guideline 414)Based on available data, the classification criteria are not met.
LOAEC Develop.	:	3.000 ppm (Rat)(18 d; 7 hours/day)(OECD Test Guideline 414)Body weight loss

Specific Target Organ Toxicity

Single exposure

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

Repeated exposure

Remarks	:	No known significant effects or critical hazards.

Other toxic properties

Repeated dose toxicity

NOAEC	:	5041 ppm (Rat, male and female)(Inhalation; vapour; 4 month; 6 hours/day) (OECD Test Guideline 413)No adverse effect has been observed with repeated intake in toxicity tests.

Aspiration hazard

No aspiration toxicity classification,

Further information

Experience with human exposure	:	Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Chronic exposure may cause dermatitis.,

SECTION 12: Ecological information

12.1. Toxicity

Component:	butanone	CAS-No. 78-93-3

Acute toxicity

Fish

LC50	:	2993 mg/l (Pimephales promelas; 96 h) (static test; OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

EC50	:	308 mg/l (Daphnia magna; 48 h) (static test; OECD Test Guideline 202)

algae

EC50	:	1972 mg/l (Pseudokirchneriella subcapitata (green algae); 72 h) (static test; End point: Growth rate; OECD Test Guideline 201)

Bacteria

EC0	:	1150 mg/l (Pseudomonas putida; 16 h) (static test; DIN 38412)

12.2. Persistence and degradability

Data for the product		
Persistence and degradability		
Persistence		
Result	:	The product is insoluble and floats on water. The product evaporates easily from water surface.
Result	:	

Component:	butanone	CAS-No. 78-93-3
Persistence and degradability		
Persistence		
Result	:	Transformation due to hydrolysis not expected to be significant. Transformation due to photolysis not expected to be significant.
Biodegradability		
Result	:	98 % (Exposure Time: 28 d)(OECD Test Guideline 301D)Readily biodegradable.

12.3. Bioaccumulative potential

Component:	butanone	CAS-No. 78-93-3
Bioaccumulation		
Result	:	log Kow 0,3 (40 °C)
	:	Does not bioaccumulate.

12.4. Mobility in soil

Component:	butanone	CAS-No. 78-93-3
Mobility		
Water	:	Expected to remain in water or migrate through soil., The product is partly soluble in water.

12.5. Results of PBT and vPvB assessment

Component:	butanone	CAS-No. 78-93-3
Results of PBT and vPvB assessment		
Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Other adverse effects

Component:	butanone	CAS-No. 78-93-3
	Additional ecological information	

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

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations. Do not burn, or use a cutting torch on, the empty drum. Risk of explosion.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

1193

14.2. UN proper shipping name

ADR : ETHYL METHYL KETONE
RID : ETHYL METHYL KETONE
IMDG : ETHYL METHYL KETONE

14.3. Transport hazard class(es)

ADR-Class : 3
(Labels; Classification Code; Hazard identification No; Tunnel restriction code) 3; F1; 33; (D/E)

RID-Class : 3
(Labels; Classification Code; Hazard identification No) 3; F1; 33

IMDG-Class : 3
(Labels; EmS) 3; F-E, S-D

14.4. Packaging group

ADR : II
RID : II
IMDG : II

14.5. Environmental hazards

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

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

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

Data for the product

EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed
German Störfallverordnung	:	Falls under the German StörfallV. P5c* (*This applies for normal storage conditions. Please check hazard categories P5a and P5b for storage conditions/ processing conditions under pressure or in cases of high temperature.)
Other regulations	:	Occupational restrictions: Take note of Dir 92/85/EEC on the safety and health of pregnant workers at work and of Dir 94/33/EC on the protection of young people at work.

Component:	**butanone**	**CAS-No. 78-93-3**

EU. Regulation 273/2004, Drug Precursors, Category 3	:	Scheduled substance Combined Nomenclature (CN) code: , 2914 12 00; Combined Nomenclature designation
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 40; Listed

EU. Directive 2012/18/EU (SEVESO III) Annex I	:	Lower-tier requirements: 5.000 tonnes; Part 1: Categories of dangerous substances; P5c: Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa. Upper-tier requirements: 50.000 tonnes; Part 1: Categories of dangerous substances; P5c: Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa.
AwSV (DE)	:	WGK 1: slightly hazardous to water: 150

Notification status butanone:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	201-159-0
ENCS (JP)	YES	(2)-542
IECSC	YES	
ISHL (JP)	YES	(2)-542
KECI (KR)	YES	97-1-81
KECI (KR)	YES	KE-24094
NZIOC	YES	HSR001190
PICCS (PH)	YES	
TSCA	YES	

15.2. Chemical safety assessment

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

SECTION 16: Other information

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

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

Abbreviations and Acronyms

UVCB **substance of unknown or variable composition,**	vPvB

complex reaction products or biological materials	
very persistent and very bioaccumulative	
BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of

hazardous materials must be adhered to.

Other information : The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship.

The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

Methylethylketon

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	Use as an intermediate	3	NA	NA	1, 2, 3, 4, 8a, 8b, 15	6a	NA	ES626
3	Distribution of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2, 3, 4, 5, 6a, 7	NA	ES628
4	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES630
5	Use in polymer processing	3	10	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 13, 14, 21	4	NA	ES222
6	Use in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	4	NA	ES632
7	Use in coatings	21	NA	1, 4, 8, 9a, 9b, 15, 18, 23, 24, 31, 34	NA	8a, 8d	NA	ES363
8	Use in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	NA	ES229
9	Use in cleaning agents	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES636
10	Use in cleaning agents	21	NA	9a, 9b, 24, 35	NA	8a, 8d	NA	ES392
11	Use in cleaning agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8b, 8d	NA	ES319
12	Use in binder and release agents	3	NA	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	4	NA	ES185
13	Use in binder and release agents	22	NA	NA	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14	8a, 8d	NA	ES324
14	Use in agrochemicals	21	NA	12, 27	NA	8a, 8d	NA	ES481
15	Use in agrochemicals	22	NA	NA	1, 2, 4, 8a, 8b, 11, 13	8a, 8d	NA	ES322
16	Use in fuel	3	NA	NA	1, 2, 3, 8a, 8b, 16	7	NA	ES189
17	Use in fuel	21	NA	13	NA	9a, 9b	NA	ES485
18	Use in fuel	22	NA	NA	1, 2, 3, 8a, 8b, 16	9a, 9b	NA	ES326
19	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES177
20	Use as lubricants	21	NA	1, 24, 31	NA	8a, 8d, 9a, 9b	NA	ES471

21	Use as Functional Fluids	21	NA	16, 17	NA	9a, 9b	NA	ES489
22	Use in laboratories	3	NA	NA	10, 15	2, 4	NA	ES217
23	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES329
24	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
25	Use in de-icing and anti-icing applications	22	NA	NA	8b, 10, 11	8d	NA	ES357
26	Use in road and construction applications	22	NA	NA	8a, 8b, 9, 10, 11, 13	8d, 8f	NA	ES353
27	Use as water treatment chemicals	3	NA	NA	1, 2, 3, 4, 8a, 8b, 13	3	NA	ES226
28	Use as water treatment chemicals	22	NA	NA	1, 2, 3, 4, 8a, 8b, 13	8f	NA	ES331
29	Use in explosives	22	NA	NA	1, 3, 5, 8a, 8b	8e	NA	ES355
30	Other consumer uses	21	NA	28, 39	NA	8a, 8d	NA	ES15896

Methylethylketon

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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4		
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 %.
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature.	
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	For personal protection see section 8.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented for the environment.		
Workers		

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.
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.

Methylethylketon

1. Short title of Exposure Scenario 2: Use as an intermediate		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
Activity	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.		
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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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: 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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7		
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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	Equipment cleaning and maintenance	Apply vessel entry procedures including use of forced supplied air. Drain down and flush system prior to equipment break-in or maintenance.(PROC8a)
	Drum and small package filling	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Drain down and flush system prior to equipment

		break-in or maintenance.(PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.
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: 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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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, pelletisation 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	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2, PROC3)
	General exposures (open systems)	Provide extract ventilation to points where emissions occur.(PROC4)
	Equipment cleaning and maintenance	Apply vessel entry procedures including use of forced supplied air. Drain down and flush system prior to equipment break-in or maintenance.(PROC8a)
	Transfer from/pouring	Provide extract ventilation to points where

	from containers Manual	emissions occur.(PROC8a)
	Drum/batch transfers	Use drum pumps or carefully pour from container.(PROC8b)
	Bulk transfers	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	For personal protection see section 8.	
	Mixing operations (open systems)	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5)
	Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Wear a respirator conforming to EN140 with Type A filter or better.(PROC14)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 polymer processing		
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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC21: Low energy manipulation of substances bound in materials and/ or articles	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
Activity	Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated 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, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC21		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC2)
	Additive premixing	Avoid carrying out operation for more than 4 hours. Ensure material transfers are under containment or extract ventilation.(PROC5)
	Calendering (including Banburys) Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC6)

	Equipment maintenance	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC8a)
	Bulk transfers	Handle substance within a closed system. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC9)
	Small scale weighing	Ensure material transfers are under containment or extract ventilation.(PROC9)
	Production of articles by dipping and pouring	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC13)
	Extrusion and masterbatching	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC14)
	Injection moulding of articles	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC14)
	Finishing operations	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC21)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 coatings		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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, pelletisation 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems) With sample collection Use in contained systems	Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	Film formation - force drying, stoving and other technologies Operation is carried out	Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.(PROC2)

	at elevated temperature (> 20°C above ambient temperature).	
	Film formation - air drying	Provide extraction ventilation at points where emissions occur.(PROC4)
	Mixing operations General exposures (closed systems)	Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.(PROC3)
	Preparation of material for application Mixing operations (open systems)	Provide extract ventilation to points where emissions occur.(PROC5)
	Spraying (automatic/robotic)	Carry out in a vented booth provided with laminar airflow.(PROC7)
	Manual spraying	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7)
	Material transfers	Clear transfer lines prior to de-coupling. Provide extract ventilation to material transfer points and other openings.(PROC8a)
	Material transfers	Clear transfer lines prior to de-coupling.(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)
	Dipping, immersion and pouring	Avoid manual contact with wet work pieces. Provide extract ventilation to points where emissions occur.(PROC13)
	Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Provide extract ventilation to points where emissions occur.(PROC14)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Manual spraying	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

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 7: Use 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 (e.g. Disinfectants, pest control) 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 treatment 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
Amount used	Amount used per event	9 g(PC1Glues, hobby use)
Frequency and duration of use	Exposure duration per day	4 h(PC1Glues, hobby use)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Glues, hobby use)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Glues, hobby use)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Glues, hobby use)	
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
Amount used	Amount used per event	6,390 kg (PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))
Frequency and duration of use	Exposure duration per day	6 h(PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))

	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 110 cm²(PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Glues DIY-use (carpet glue, tile glue, wood parquet glue))
	Covers use under typical household ventilation.(PC1 Glues DIY-use (carpet glue, tile glue, wood parquet glue))	
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
Amount used	Amount used per event	85,05 g(PC1Glue from spray)
Frequency and duration of use	Exposure duration per day	4 h(PC1Glue from spray)
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Glue from spray)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Glue from spray)
	Covers use under typical household ventilation.(PC1 Glue from spray)	
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	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	75 g(PC1Sealants)
Frequency and duration of use	Exposure duration per day	1 h(PC1Sealants)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Sealants)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Sealants)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Sealants)	
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: PC4: Washing car window		
Product characteristics	Concentration of the	Covers percentage substance in the product up to 1

	Substance in Mixture/Article	%.
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	0,5 g(PC4PC4_1: Washing car window)
Frequency and duration of use	Exposure duration per day	0,02 h(PC4Washing car window)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC4PC4_1: Washing car window)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC4 PC4_1: Washing car window)
	Ventilation rate per hour	1,5(PC4 PC4_1: Washing car window)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC4 PC4_1: Washing car window)	
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: 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
Amount used	Amount used per event	2 kg (PC4Pouring into radiator)
Frequency and duration of use	Exposure duration per day	0,17 h(PC4Pouring into radiator)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428 cm²(PC4Pouring into radiator)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC4 Pouring into radiator)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC4 Pouring into radiator)	
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: PC8: 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
Amount used	Amount used per event	27 g(PC8Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
Frequency and duration of use	Exposure duration per day	0,33 h(PC8Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
	Frequency of use	128 days/year

Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC8Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC8 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC8 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))	
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, 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
Amount used	Amount used per event	35 g(PC8Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
Frequency and duration of use	Exposure duration per day	0,17 h(PC8Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
	Frequency of use	128 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428 cm²(PC8Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC8 Cleaners, trigger sprays)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC8 Cleaners, trigger sprays)	
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: 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
Amount used	Amount used per event	0,744 kg (PC9aSolvent rich, high solid, water borne paint)
Frequency and duration of use	Exposure duration per day	2,2 h(PC9aSolvent rich, high solid, water borne paint)
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC9aSolvent rich, high solid, water borne paint)
Other given operational conditions affecting consumers	Room size	20 m3(PC9a Solvent rich, high solid, water borne paint)

exposure	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9a Solvent rich, high solid, water borne paint)	
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: 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
Amount used	Amount used per event	0,215 kg (PC9aAerosol spray can)
Frequency and duration of use	Exposure duration per day	0,33 h(PC9aAerosol spray can)
	Frequency of use	2 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9aAerosol spray can)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC9a Aerosol spray can)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC9a Aerosol spray can)	
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: 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
Amount used	Amount used per event	0,491 kg (PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
Frequency and duration of use	Exposure duration per day	2 h(PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
	Frequency of use	3 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9a Removers (paint-, glue-, wall paper-, sealant-remover))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9a Removers (paint-, glue-, wall paper-, sealant-remover))	
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: 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
Amount used	Amount used per event	85 g(PC9bFillers and putty)
Frequency and duration of use	Exposure duration per day	4 h(PC9bFillers and putty)
	Frequency of use	12 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC9bFillers and putty)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9b Fillers and putty)
	Ventilation rate per hour	0,6(PC9b Fillers and putty)
	Covers use under typical household ventilation.(PC9b Fillers and putty)	
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.	

2.14 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
Amount used	Amount used per event	13,8 kg (PC9bPlasters and floor equalizers)
Frequency and duration of use	Exposure duration per day	2 h(PC9bPlasters and floor equalizers)
	Frequency of use	12 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9bPlasters and floor equalizers)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9b Plasters and floor equalizers)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9b Plasters and floor equalizers)	
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: 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
Amount used	Amount used per event	0,744 kg (PC15Solvent rich, high solid, water borne paint)
Frequency and duration of use	Exposure duration per day	2,2 h(PC15Solvent rich, high solid, water borne paint)
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC15Solvent rich, high solid, water borne paint)
Other given operational	Room size	20 m3(PC15 Solvent rich, high solid, water borne

conditions affecting consumers exposure		paint)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC15 Solvent rich, high solid, water borne paint)	
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: 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
Amount used	Amount used per event	0,215 kg (PC15Aerosol spray can)
Frequency and duration of use	Exposure duration per day	0,33 h(PC15Aerosol spray can)
	Frequency of use	2 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC15Aerosol spray can)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC15 Aerosol spray can)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC15 Aerosol spray can)	
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: 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
Amount used	Amount used per event	0,491 kg (PC15Removers (paint-, glue-, wall paper-, sealant remover))
Frequency and duration of use	Exposure duration per day	2 h(PC15Removers (paint-, glue-, wall paper-, sealant remover))
	Frequency of use	3 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC15Removers (paint-, glue-, wall paper-, sealant remover))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC15 Removers (paint-, glue-, wall paper-, sealant remover))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC15 Removers (paint-, glue-, wall paper-, sealant remover))	
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: PC18: Ink and toners		
Product characteristics	Concentration of the Substance in	Concentration of substance in product : 0% - 10%

	Mixture/Article	
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	40 g(PC18Ink and toners)
Frequency and duration of use	Exposure duration per day	2,2 h(PC18Ink and toners)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 71,4 cm²(PC18Ink and toners)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC18 Ink and toners)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC18 Ink and toners)	
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: 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
Amount used	Amount used per event	56 g(PC23Polishes, wax / cream (floor, furniture, shoes))
Frequency and duration of use	Exposure duration per day	1,23 h(PC23Polishes, wax / cream (floor, furniture, shoes))
	Frequency of use	29 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²(PC23Polishes, wax / cream (floor, furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC23 Polishes, wax / cream (floor, furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC23 Polishes, wax / cream (floor, furniture, shoes))	
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: 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
Amount used	Amount used per event	56 g(PC23Polishes, spray (furniture, shoes))
Frequency and duration of use	Exposure duration per day	0,33 h(PC23Polishes, spray (furniture, shoes))
	Frequency of use	8 days/year
Human factors not influenced by	Exposed skin area	Covers skin contact area up to 430

risk management		cm²(PC23Polishes, spray (furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC23 Polishes, spray (furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC23 Polishes, spray (furniture, shoes))	
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: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	2,2 kg (PC24Liquids)
Frequency and duration of use	Exposure duration per day	0,17 h(PC24Liquids)
	Frequency of use	4 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Liquids)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC24 Liquids)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC24 Liquids)	
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: 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
Amount used	Amount used per event	34 g(PC24Pastes)
Frequency and duration of use	Exposure duration per day	4 h(PC24Pastes)
	Frequency of use	10 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Pastes)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Pastes)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Pastes)	
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: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid

Amount used	Amount used per event	73 g(PC24Sprays)
Frequency and duration of use	Exposure duration per day	0,17 h(PC24Sprays)
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC24Sprays)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Sprays)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Sprays)	
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: 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
Amount used	Amount used per event	142 g(PC31Polishes, wax / cream (floor, furniture, shoes))
Frequency and duration of use	Exposure duration per day	1,23 h(PC31Polishes, wax / cream (floor, furniture, shoes))
	Frequency of use	29 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²(PC31Polishes, wax / cream (floor, furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC31 Polishes, wax / cream (floor, furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC31 Polishes, wax / cream (floor, furniture, shoes))	
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: 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
Amount used	Amount used per event	35 g(PC31Polishes, spray (furniture, shoes))
Frequency and duration of use	Exposure duration per day	0,33 h(PC31Polishes, spray (furniture, shoes))
	Frequency of use	8 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²(PC31Polishes, spray (furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC31 Polishes, spray (furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient	

	temperatures.(PC31 Polishes, spray (furniture, shoes))	
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: PC34

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	0,115 kg (PC34)
Frequency and duration of use	Exposure duration per day	1 h(PC34)
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC34)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC34)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC34)	
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

ECETOC TRA consumer v3. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Methylethylketon

1. Short title of Exposure Scenario 8: Use in coatings		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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) Use in contained systems	Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation.(PROC2)
	Preparation of material for application Use in contained batch processes	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC3)
	Film formation - air drying Indoor	Provide extract ventilation to points where emissions occur.(PROC4)
	Preparation of material for application	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC5)

Methylethylketon

	Indoor	
	Material transfers 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. Avoid carrying out operation for more than 1 hour.(PROC8a)
	Material transfers Drum/batch transfers Dedicated facility	Provide extract ventilation to material transfer points and other openings.(PROC8b)
	Roller, spreader, flow application Indoor	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
	Manual spraying Indoor	Carry out in a vented booth or extracted enclosure.(PROC11)
	Dipping, immersion and pouring Indoor	Provide extract ventilation to 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 general ventilation (not less than 3 to 5 air changes per hour).(PROC15)
	Hand application - fingerpaints, 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 - fingerpaints, pastels, adhesives Outdoor	Ensure operation is undertaken outdoors.(PROC19)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Film formation - air drying Outdoor	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Preparation of material for application Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5)
	Preparation of material for application Indoor	If no adequate ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC5)
	Drum/batch transfers	If no adequate ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
	Roller, spreader, flow application Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Manual spraying Indoor Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Hand application - fingerpaints, pastels, adhesives Indoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC19)

	Hand application - fingerpaints, pastels, adhesives Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC19)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 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: 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Ensure samples are obtained under containment or extract ventilation.(PROC1)
	Use in contained batch processes	Provide extract ventilation to points where emissions occur.(PROC4)
	Cleaning with high pressure washers	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7)
	Filling/ preparation of equipment from drums or containers.	Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Cleaning with low-pressure washers	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
	Manual Surfaces Cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
	Degreasing small objects in cleaning station	Provide extract ventilation to points where emissions occur.(PROC13)
Conditions and measures related	For personal protection see section 8.	

to personal protection, hygiene and health evaluation	Automated process with (semi) closed systems Use in contained systems	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2)
	Application of cleaning products in 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)
	Automated process with (semi) closed systems Drum/batch transfers	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC3)
	Cleaning with low-pressure washers	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)
	Cleaning with low-pressure washers	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Manual Surfaces Cleaning	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 10: 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	
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 concentrations up to 27,5%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	0,744 kg (PC9aSolvent rich, high solid, water borne paint)
Frequency and duration of use	Exposure duration per event	2,2 h(PC9aSolvent rich, high solid, water borne paint)
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC9aSolvent rich, high solid, water borne paint)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9a Solvent rich, high solid, water borne paint)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9a Solvent rich, high solid, water borne paint)	
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: 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
Amount used	Amount used per event	0,215 kg (PC9aAerosol spray can)
Frequency and duration of use	Exposure duration per event	0,33 h(PC9aAerosol spray can)
	Frequency of use	2 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9aAerosol spray can)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC9a Aerosol spray can)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at	

	ambient temperatures.(PC9a Aerosol spray can)	
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
Amount used	Amount used per event	0,491 kg (PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
Frequency and duration of use	Exposure duration per day	2 h(PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
	Frequency of use	3 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9aRemovers (paint-, glue-, wall paper-, sealant-remover))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9a Removers (paint-, glue-, wall paper-, sealant-remover))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9a Removers (paint-, glue-, wall paper-, sealant-remover))	
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: 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
Amount used	Amount used per event	13,8 kg (PC9bPlasters and floor equalizers)
Frequency and duration of use	Exposure duration per day	2 h(PC9bPlasters and floor equalizers)
	Frequency of use	12 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC9bPlasters and floor equalizers)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC9b Plasters and floor equalizers)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC9b Plasters and floor equalizers)	
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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of	liquid

	use)	
Amount used	Amount used per event	2,2 kg (PC24Liquids)
Frequency and duration of use	Exposure duration per day	0,17 h(PC24Liquids)
	Frequency of use	4 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Liquids)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC24 Liquids)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC24 Liquids)	
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
Amount used	Amount used per event	34 g(PC24Pastes)
Frequency and duration of use	Exposure duration per day	4 h(PC24Pastes)
	Frequency of use	10 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Pastes)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Pastes)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Pastes)	
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: 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
Amount used	Amount used per event	73 g(PC24Sprays)
Frequency and duration of use	Exposure duration per event	0,17 min(PC24Sprays)
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC24Sprays)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Sprays)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Sprays)	
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)		
2.9 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
Amount used	Amount used per event	27 g(PC35Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
Frequency and duration of use	Exposure duration per day	0,33 min(PC35Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
	Frequency of use	128 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC35Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC35 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC35 Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))	
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
Amount used	Amount used per event	35 g(PC35Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
Frequency and duration of use	Exposure duration per day	0,17 h(PC35Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
	Frequency of use	128 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428 cm²(PC35Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC35 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC35 Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))	
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

ECETOC TRA consumer v3.

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.

1. Short title of Exposure Scenario 11: Use in cleaning agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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 ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out operation for more than 4 hours.(PROC4)
	Cleaning of medical devices	Provide extract ventilation to points where emissions occur. Avoid carrying out operation for more than 4 hours.(PROC4)
	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. Avoid carrying out operation for more than 1 hour.(PROC8a)
	Filling/ preparation of	Ensure operation is undertaken outdoors.(PROC8a)

	equipment from drums or containers.	
	Manual Surfaces Cleaning Spraying	Ensure doors and windows are opened. Avoid carrying out operation for more than 1 hour.(PROC10)
	Cleaning with low-pressure washers Rolling, Brushing no spraying	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. Limit the substance content in the product to 5 %.(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing	Provide extract ventilation to points where emissions occur. Limit the substance content in the product to 25 %. Avoid carrying out operation for more than 4 hours.(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. Limit the substance content in the product to 1 %.(PROC11)
	Manual Surfaces Cleaning Dipping, immersion and pouring	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. Avoid carrying out operation for more than 4 hours.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Automated process with (semi) closed systems Use in contained systems	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2)
	Automated process with (semi) closed systems Drum/batch transfers Use in contained systems	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC3)
	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	If no adequate ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Application of cleaning products in closed systems Outdoor	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	If no adequate extract ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Filling/ preparation of equipment from drums or containers.	If no adequate ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
	Filling/ preparation of equipment from drums or containers.	Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
	Manual	Wear a respirator conforming to EN140 with Type A

	Surfaces Cleaning	filter or better.(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing	If no adequate extract ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc. Rolling, Brushing	If no adequate extract ventilation is available: Wear a respirator conforming to EN140 with Type A filter or better. Avoid carrying out operation for more than 4 hours.(PROC10)
	Cleaning with high pressure washers Spraying Outdoor	Limit the substance content in the product to 1 %. Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Manual Surfaces Cleaning	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

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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: Use in binder and release agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC7: Industrial spraying 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 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	
Activity	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.	
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, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Material transfers	Transfer via enclosed lines.(PROC1, PROC2, PROC3)
	Mixing operations (open systems)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC4)
	Casting operations Operation is carried out at elevated temperature (> 20°C above ambient temperature). with potential for aerosol generation	Provide extract ventilation to points where emissions occur.(PROC6)
	Spraying/ fogging by machine application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Spraying/ fogging by	Carry out in a vented booth or extracted

	manual application	enclosure.(PROC7)
	Dipping, immersion and pouring	Provide extract ventilation to points where emissions occur.(PROC13)
	Mold forming	Provide extract ventilation to points where emissions occur.(PROC14)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Casting operations Elevated temperature with potential for aerosol generation	Wear a respirator conforming to EN140 with Type A filter or better.(PROC6)
	Dipping, immersion and pouring	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

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 binder and release agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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 PROC10: Roller application or brushing PROC11: Non industrial spraying 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 ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	
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, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Material transfers Closed systems	Transfer via enclosed lines.(PROC1, PROC2, PROC3)
	Mixing operations Closed systems	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC3)
	Mixing operations (open systems)	Provide enhanced general ventilation by mechanical means.(PROC4)
	Casting operations Open systems Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Provide extract ventilation to points where emissions occur.(PROC6)
	Drum/batch transfers	Use drum pumps.(PROC8b)
	Rolling, Brushing	Minimise exposure by partial enclosure of the

		operation or equipment and provide extract ventilation at openings.(PROC10)
	Spraying/ fogging by machine application	Minimise exposure by extracted full enclosure for the operation or equipment.(PROC11)
	Spraying/ fogging by manual application	Carry out in a vented booth or extracted enclosure.(PROC11)
	Mold forming	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC14)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 14: Use in agrochemicals		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC12: 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 in 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% - 50%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	50 g(PC12, PC27)
Frequency and duration of use	Exposure duration per event	4 h(PC12, PC27)
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²(PC12, PC27)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC12, PC27)
	Covers use under typical household ventilation., Covers use at ambient temperatures., For each use event, assumes swallowed amount of 0.3 grams(PC12, PC27)	
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

ECETOC TRA consumer v3. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Methylethylketon

1. Short title of Exposure Scenario 15: Use in agrochemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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)	Ensure operation is undertaken outdoors.(PROC4)
	Disposal of wastes	Ensure operation is undertaken outdoors.(PROC8a)
	Transfer from/pouring from containers	Ensure operation is undertaken outdoors.(PROC8b)
	Spraying/ fogging by machine application	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.(PROC11)
	Ad hoc manual application via trigger sprays, dipping, etc.	Ensure operation is undertaken outdoors.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Disposal of wastes	Wear suitable gloves tested to EN374. Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 25 %.(PROC8a)
	Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 25 %.(PROC8a)

	Spraying/ fogging by manual application	Wear a full face 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

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 16: Use in fuel		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system. Transfer via enclosed lines. Ensure operation is undertaken outdoors.(PROC1, PROC2)
	Use as a fuel (closed systems)	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC16)
	Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Apply vessel entry procedures including use of forced supplied air.(PROC8a)
	Bulk transfers	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	For personal protection see section 8.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented for the environment.		

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 17: Use in 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 of automotive fuels only.	
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 the percentage of the 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 (PC13Liquid: Automotive Refuelling)
	Amount used per event	3,75 kg (PC13Liquid: Scooter Refuelling)
Frequency and duration of use	Exposure duration per event	0,05 h(PC13Liquid: Automotive Refuelling)
	Exposure duration per event	0,03 h(PC13Liquid: Scooter Refuelling)
	Frequency of use	52 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 210 cm²(PC13)
Other given operational conditions affecting consumers exposure	Room size	100 m3
	Covers use at ambient temperatures.	
	Outdoor use	
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 %.
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	0,750 kg (PC13)
Frequency and duration of use	Exposure duration per event	2 h(PC13Liquid: Garden Equipment - Use)
	Exposure duration per event	0,03 h(PC13Liquid: Garden Equipment - Refueling)
	Frequency of use	26 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 420 cm²(PC13)
Other given operational	Room size	100 m3(PC13 Liquid: Garden Equipment - Use)

conditions affecting consumers exposure	Room size	34 m3(PC13 Liquid: Garden Equipment - Refueling)
	Covers use in a one car garage (34 m3) under typical ventilation.(PC13 Liquid: Garden Equipment - Refueling)	
	Outdoor use	
	Covers use at ambient temperatures.	
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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	100 g(PC13Liquid: Lamp oil)
Frequency and duration of use	Exposure duration per event	0,01 h(PC13Liquid: Lamp oil)
	Frequency of use	1 Times per day
	Frequency of use	52 days/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 210 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC13 Liquid: Lamp oil)
	Covers use under typical household ventilation.(PC13 Liquid: Lamp oil)	
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

ECETOC TRA consumer v3. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

1. Short title of Exposure Scenario 18: Use in fuel		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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	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: 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system. Ensure operation is undertaken outdoors. Transfer via enclosed lines.(PROC1)
	Use as a fuel (closed systems)	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC16)
	Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Apply vessel entry procedures including use of forced supplied air. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)
	Bulk transfers	Handle substance within a closed system. Clear transfer lines prior to de-coupling. Ensure operation is undertaken outdoors.(PROC8b)
	Drum/batch transfers	Use drum pumps or carefully pour from container.(PROC8b)
	Refuelling	Use drum pumps or carefully pour from container.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 19: Use as lubricants		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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, PROC13, PROC10, PROC17, PROC18		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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)
	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.	Use drum pumps or carefully pour from container.(PROC8a, PROC8b)
	Maintenance (of larger plant items) and machine set up Operation is carried out	Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.(PROC8b)

	at elevated temperature (> 20°C above ambient temperature).	
	Maintenance (of larger plant items) and machine set up	Clear lines prior to de-coupling.(PROC8b)
	Initial factory fill of equipment	Ensure material transfers are under containment or extract ventilation.(PROC9)
	Remanufacture of reject articles	Avoid carrying out operation for more than 4 hours.(PROC9)
	Rolling, Brushing	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
	Treatment by dipping and pouring	Restrict area of openings to equipment.(PROC13)
	Operation and lubrication of high energy open equipment	Restrict area of openings to equipment.(PROC17)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Maintenance (of larger plant items) and machine set up Elevated temperature	Wear suitable gloves tested to EN374.(PROC8b)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 20: 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
Amount used	Amount used per event	9 g(PC1Glues, hobby use)
Frequency and duration of use	Exposure duration per event	4 h(PC1Glues, hobby use)
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Glues, hobby use)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Glues, hobby use)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Glues, hobby use)	
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
Amount used	Amount used per event	6,390 kg (PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))
Frequency and duration of use	Exposure duration per event	6 h(PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 110 cm²(PC1Glues DIY-use (carpet glue, tile glue, wood parquet glue))
Other given operational conditions affecting consumers	Room size	20 m3(PC1 Glues DIY-use (carpet glue, tile glue, wood parquet glue))

exposure	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Glues DIY-use (carpet glue, tile glue, wood parquet glue))	
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
Amount used	Amount used per event	85,05 g(PC1Glue from spray)
Frequency and duration of use	Exposure duration per event	4 h(PC1Glue from spray)
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Glue from spray)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Glue from spray)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Glue from spray)	
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	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	75 g(PC1Sealants)
Frequency and duration of use	Exposure duration per event	1 h(PC1Sealants)
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 35,73 cm²(PC1Sealants)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC1 Sealants)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC1 Sealants)	
2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	2,2 kg (PC24Liquids)

Frequency and duration of use	Exposure duration per event	0,17 h(PC24Liquids)
	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Liquids)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC24 Liquids)
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.(PC24 Liquids)	
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
Amount used	Amount used per event	34 g(PC24Pastes)
Frequency and duration of use	Exposure duration per event	4 h(PC24Pastes)
	Frequency of use	10 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC24Pastes)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Pastes)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Pastes)	
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: 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
Amount used	Amount used per event	73 g(PC24Sprays)
Frequency and duration of use	Exposure duration per event	0,17 h(PC24Sprays)
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 428,75 cm²(PC24Sprays)
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC24 Sprays)
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC24 Sprays)	
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)		
2.9 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
Amount used	Amount used per event	142 g(PC31Polishes, wax / cream (floor, furniture, shoes))
Frequency and duration of use	Exposure duration per event	1,23 h(PC31Polishes, wax / cream (floor, furniture, shoes))
	Frequency of use	29 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²(PC31Polishes, wax / cream (floor, furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC31 Polishes, wax / cream (floor, furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC31 Polishes, wax / cream (floor, furniture, shoes))	
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
Amount used	Amount used per event	35 g(PC31Polishes, spray (furniture, shoes))
Frequency and duration of use	Exposure duration per event	0,33 h(PC31Polishes, spray (furniture, shoes))
	Frequency of use	8 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²(PC31Polishes, spray (furniture, shoes))
Other given operational conditions affecting consumers exposure	Room size	20 m3(PC31 Polishes, spray (furniture, shoes))
	Covers use under typical household ventilation., Covers use at ambient temperatures.(PC31 Polishes, spray (furniture, shoes))	
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

ECETOC TRA consumer v3. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Methylethylketon

1. Short title of Exposure Scenario 21: Use as Functional Fluids		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC16: Heat transfer fluids PC17: Hydraulic fluids	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
Activity	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
No exposure assessment presented for the environment		
2.2 Contributing scenario controlling consumer exposure for: PC16, PC17		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	2,2 kg (PC16, PC17)
Frequency and duration of use	Exposure duration per event	0,17 h(PC16, PC17)
	Frequency of use	4 days/year(PC16, PC17)
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 468 cm²(PC16, PC17)
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC16, PC17)
	Covers use at ambient temperatures., Covers use in a one car garage (34 m3) under typical ventilation.(PC16, PC17)	
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

ECETOC TRA consumer v3. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Methylethylketon

1. Short title of Exposure Scenario 22: 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

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. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 23: 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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
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) Avoid carrying out operation for more than 1 hour.(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Cleaning	Ensure the ventilation system is regularly maintained and tested.(PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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/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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system. Transfer via enclosed lines.(PROC1, PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Automated metal rolling/forming Use in contained systems Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Handle substance within a predominantly closed system provided with extract ventilation.(PROC2)
	Semi-automated metal rolling/forming	Minimise exposure by partial enclosure of the operation or equipment and provide extract

		ventilation at openings.(PROC4)
	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)
	Equipment cleaning and maintenance Non-dedicated facility	Provide enhanced general ventilation by mechanical means.(PROC8a)
	Process sampling	Use dedicated equipment.(PROC8b)
	Bulk transfers	Provide enhanced general ventilation by mechanical means.(PROC8b)
	Rolling, Brushing	Provide enhanced general ventilation by mechanical means.(PROC10)
	Treatment by dipping and pouring	Provide enhanced general ventilation by mechanical means.(PROC13)
	Metal machining operations	Provide extract ventilation to points where emissions occur.(PROC17)
	Semi-automated metal rolling/forming Operation is carried out at elevated temperature (> 20°C above ambient temperature).	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC17)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 25: Use in de-icing and anti-icing applications		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
No exposure assessment presented for the environment		
2.2 Contributing scenario controlling worker exposure for: PROC8b, PROC10, PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers	Ensure operation is undertaken outdoors.(PROC8b)
	Material transfers	Ensure operation is undertaken outdoors.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Bulk transfers	Avoid carrying out operation for more than 1 hour. Wear suitable gloves tested to EN374.(PROC8b)
	Material transfers	Wear suitable gloves tested to EN374. Avoid carrying out operation for more than 1 hour.(PROC8b)
	Equipment cleaning and maintenance	Avoid carrying out operation for more than 4 hours. Limit the substance content in the product to 1 %. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC10)
	Spraying/fogging by machine application Elevated temperature	Avoid carrying out operation for more than 1 hour. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Limit the substance content in the product to 5 %.(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. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.		
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.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 26: Use in road and construction applications		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
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: ERC8d, ERC8f		
No exposure assessment presented for the environment		
2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Equipment cleaning and maintenance	Ensure operation is undertaken outdoors. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)
	Drum/batch transfers Dedicated facility	Use dedicated equipment. Clear transfer lines prior to de-coupling.(PROC8b)
	Rolling, Brushing	Ensure operation is undertaken outdoors.(PROC10)
	Spraying/ fogging by machine application	Ensure operation is undertaken outdoors.(PROC11)
	Dipping, immersion and pouring	Ensure operation is undertaken outdoors.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
	Equipment cleaning and maintenance	Avoid carrying out operation for more than 1 hour. Wear suitable gloves tested to EN374.(PROC8a)
	Drum/batch transfers Dedicated facility	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC8a)
	Drum/batch transfers Dedicated facility	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC8b)
	Rolling, Brushing	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC10)
	Spraying/ fogging by	Wear suitable respiratory protection (conforming to

	machine application	EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC11)
	Dipping, immersion and pouring	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC13)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Methylethylketon

1. Short title of Exposure Scenario 27: Use as water treatment chemicals	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC3: Formulation in materials
Activity	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

2.1 Contributing scenario controlling environmental exposure for: ERC3
No exposure assessment presented for the environment

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1)
	Equipment maintenance	Drain down and flush system prior to equipment break-in or maintenance.(PROC8a)
	Drum/batch transfers	Use drum pumps.(PROC8b)
	Pouring from small containers	Provide extract ventilation to points where emissions occur.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	

3. Exposure estimation and reference to its source
Environment
No exposure assessment presented for the environment.
Workers
Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 28: Use as water treatment chemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
Activity	Covers the use of the substance for the treatment of water in open and closed systems.	
2.1 Contributing scenario controlling environmental exposure for: ERC8f		
No exposure assessment presented for the environment		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1)
	General exposures (open systems)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Transfer via enclosed lines.(PROC4)
	Equipment maintenance	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Drain down system prior to equipment break-in or maintenance.(PROC8a)
	Drum/batch transfers	Use drum pumps.(PROC8b)
	Pouring from small containers	Provide extract ventilation to points where emissions occur. Avoid carrying out operation for more than 1 hour.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented for the environment.		

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 29: Use in explosives		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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	ERC8e: Wide dispersive outdoor use of reactive substances in open systems	
Activity	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning.	
2.1 Contributing scenario controlling environmental exposure for: ERC8e		
No exposure assessment presented for the environment		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC3, PROC5, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers	Handle substance within a closed system.(PROC3)
	Mixing operations (open systems)	Provide enhanced general ventilation by mechanical means.(PROC5)
	Drum/batch transfers	Use drum pumps.(PROC8a)
	Equipment maintenance	Drain down system prior to equipment break-in or maintenance.(PROC8a)
	Transfer from/pouring from containers Non-dedicated facility	Use drum pumps.(PROC8a)
	Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance.(PROC8b)
Organisational measures to prevent /limit releases, dispersion and exposure	Material transfers	Avoid carrying out operation for more than 1 hour.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	For personal protection see section 8.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented for the environment.		

Workers

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. 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

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

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 30: Other consumer uses		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC28: Perfumes, fragrances PC39: Cosmetics, personal care 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	This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance	
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: PC28, PC39		
Activity	This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance	
Product characteristics	Physical Form (at time of use)	liquid

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

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

Not applicable