SAFETY DATA SHEET
According to EC No 1907/2006 as amended as at the date of this SDS

Diisobutyl Ketone

Version	Revision Date:	SDS Number:	Date of last issue: 08.10.2019
2.0	09.09.2022	800001033915	Print Date 14.09.2022

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

1.1 Product identifier

Trade name	:	Diisobutyl Ketone
Product code	:	S1226
Registration number EU	:	01-2119474441-41-0001
Synonyms	:	DIBK
CAS-No.	:	108-83-8
EC-No.	:	203-620-1

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

Use of the Substance/Mixture	:	Use only in industrial processes. Please refer to section 16 and/or the annexes for the registered uses under REACH.
Uses advised against	:	This product must not be used in applications other than the above without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	:	**Shell Chemicals Europe B.V.** PO Box 2334 3000 CH Rotterdam Netherlands
Telephone	:	+31 (0)10 441 5137 / +31 (0)10 441 5191
Telefax	:	+31 (0)20 716 8316 / +31 (0)20 713 9230
Contact for Safety Data Sheet	:	sccmsds@shell.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per week)
Giftnotruf (Berlin): +49 (0) 30 3068 6700

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Specific target organ toxicity - single exposure, Category 3, Respiratory Tract	H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :

PHYSICAL HAZARDS:
H226 Flammable liquid and vapour.
HEALTH HAZARDS:
H335 May cause respiratory irritation.
ENVIRONMENTAL HAZARDS:
Not classified as environmental hazard according to CLP criteria.

Supplemental Hazard Statements : EUH066 Repeated exposure may cause skin dryness or cracking.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.
May form flammable/explosive vapour-air mixture.
Risk of explosion if heated under confinement.
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
Diisobutyl Ketone	108-83-8 203-620-1	< 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Not expected to be a health hazard when used under normal conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.
Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.
No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Potential for chemical pneumonitis.
Call a doctor or poison control center for guidance.
Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : None

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Carbon monoxide may be evolved if incomplete combustion occurs.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Standard procedure for chemical fires.

Further information : Clear fire area of all non-emergency personnel.
Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Observe the relevant local and international regulations
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
Local authorities should be advised if significant spillages cannot be contained.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Vapour may form an explosive mixture with air.

6.1.1 For non emergency personnel:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Stay upwind and keep out of low areas.
6.1.2 For emergency responders:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Stay upwind and keep out of low areas.

6.2 Environmental precautions

Environmental precautions : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
Ventilate contaminated area thoroughly.
Monitor area with combustible gas indicator.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely
For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropri-

ate controls for safe handling, storage and disposal of this material.
Ensure that all local regulations regarding handling and storage facilities are followed.

Advice on safe handling : Avoid contact with skin, eyes and clothing.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Bulk storage tanks should be diked (bunded).
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.
The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Do NOT use compressed air for filling, discharging, or handling operations.

Product Transfer : Refer to guidance under Handling section.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Storage class (TRGS 510) : 3, Flammable liquids

Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel.
Unsuitable material: Natural, butyl, neoprene or nitrile rubbers.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to section 16 and/or the annexes for the registered uses under REACH.

Ensure that all local regulations regarding handling and storage facilities are followed.
See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).

IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Diisobutyl Ketone	Workers	Inhalation	Acute systemic effects	290 mg/m3
Diisobutyl Ketone	Workers	Inhalation	Acute local effects	290 mg/m3
Diisobutyl Ketone	Workers	Inhalation	Long-term systemic effects	479 mg/m3
Diisobutyl Ketone	Workers	Inhalation	Long-term local effects	290 mg/m3
Diisobutyl Ketone	Workers	Dermal	Long-term systemic effects	80 mg/kg bw/day
Diisobutyl Ketone	Consumers	Inhalation	Acute systemic effects	145 mg/m3
Diisobutyl Ketone	Consumers	Inhalation	Acute local effects	145 mg/m3
Diisobutyl Ketone	Consumers	Inhalation	Long-term systemic effects	171 mg/m3
Diisobutyl Ketone	Consumers	Inhalation	Long-term local effects	145 mg/m3
Diisobutyl Ketone	Consumers	Dermal	Long-term systemic effects	28,5 mg/kg bw/day
Diisobutyl Ketone	Consumers	Oral	Long-term systemic effects	7,14 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Diisobutyl Ketone	Fresh water	0,03 mg/l
Diisobutyl Ketone	Marine water	0,003 mg/l
Diisobutyl Ketone	Fresh water sediment	0,46 mg/kg
Diisobutyl Ketone	Marine sediment	0,046 mg/kg
Diisobutyl Ketone	Soil	0,0746 mg/kg
Diisobutyl Ketone	Sewage treatment plant	2,55 mg/l

8.2 Exposure controls

Engineering measures

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

General Information:
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex. The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye protection : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.
Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Nitrile rubber gloves. Incidental contact/Splash protection: PVC, neoprene or nitrile rubber gloves For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical

resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Skin and body protection : Skin protection is not required under normal conditions of use.
For prolonged or repeated exposures use impervious clothing over parts of the body subject to exposure.
If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard, and provide employee skin care programmes.

Protective clothing approved to EU Standard EN14605.

Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
If air-filtering respirators are suitable for conditions of use:
Select a filter suitable for organic gases and vapours [Type A boiling point > 65°C (149°F)] meeting EN14387.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid.
Colour	:	clear
Odour	:	Esters
Odour Threshold	:	Data not available
Melting point/freezing point	:	Data not available
Boiling point/boiling range	:	163 - 173 °C

Flammability

Flammability (solid, gas) : Data not available

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / upper flammability limit : 6,2 %(V)

Lower explosion limit / Lower flammability limit : 0,8 %(V)

Flash point : 47 °C
Method: IP 170

Auto-ignition temperature : 345 °C
Method: ASTM D-2155

Decomposition temperature

Decomposition temperature : Data not available

pH : Not applicable

Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic : Data not available

Solubility(ies)

Water solubility : 0,5 g/l (20 °C)

Solubility in other solvents : Data not available

Partition coefficient: n-octanol/water : log Pow: 2,9 - 3,1

Vapour pressure : 160 Pa (20 °C)

Relative density : 0,806 - 0,812 (20 °C)
Method: ASTM D4052

Density : 806 - 812 kg/m3 (20 °C)
Method: ASTM D4052

Relative vapour density : 4,9 (20 °C)

Particle characteristics

Particle size : Data not available

9.2 Other information

Explosives	:	Not applicable
Oxidizing properties	:	Data not available
Evaporation rate	:	0,2 Method: ASTM D 3539, nBuAc=1
Conductivity	:	Electrical conductivity: > 10,000 pS/m A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be a static accumulator.
Surface tension	:	22,6 mN/m, 20 °C
Molecular weight	:	142,24 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.
Prevent vapour accumulation.
In certain circumstances product can ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

Acute toxicity

Components:

Diisobutyl Ketone:

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC50 (Rat): > 10 - 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Test(s) equivalent or similar to OECD Test Guideline 403
Remarks: Based on available data, the classification criteria are not met.
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Components:

Diisobutyl Ketone:

Species : Rabbit
Method : OECD Test Guideline 404
Remarks : Slightly irritating to skin.
Insufficient to classify.
Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Components:

Diisobutyl Ketone:

Species : Rabbit
Method : Test(s) equivalent or similar to OECD Test Guideline 405
Remarks : Based on available data, the classification criteria are not met.
Essentially non-irritating to eyes.
Vapours may be irritating to the eye.

Respiratory or skin sensitisation

Components:

Diisobutyl Ketone:

Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Remarks	:	Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Components:

Diisobutyl Ketone:

Genotoxicity in vitro	:	Method: Test(s) equivalent or similar to OECD Guideline 471 Remarks: Based on available data, the classification criteria are not met. Method: OECD Test Guideline 476 Remarks: Based on available data, the classification criteria are not met. Method: Test(s) equivalent or similar to OECD Test Guideline 473 Remarks: Based on available data, the classification criteria are not met.
Germ cell mutagenicity- Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Components:

Diisobutyl Ketone:

Carcinogenicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Diisobutyl Ketone	No carcinogenicity classification.

Reproductive toxicity

Components:

Diisobutyl Ketone:

Effects on fertility	:	Species: Rat

Sex: male and female
Application Route: Inhalation

Method: Equivalent or similar to OECD Test Guideline 416
Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Components:

Diisobutyl Ketone:

Exposure routes : Inhalation
Target Organs : Respiratory system
Remarks : May cause respiratory irritation.
Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - repeated exposure

Components:

Diisobutyl Ketone:

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

Repeated dose toxicity

Components:

Diisobutyl Ketone:

Species : Rat, male
Application Route : Oral
Method : Test(s) equivalent or similar to OECD Test Guideline 408
Target Organs : No specific target organs noted

Species : Rat, male and female
Application Route : Inhalation
Test atmosphere : vapour
Method : Test(s) equivalent or similar to OECD Test Guideline 412
Target Organs : No specific target organs noted

Aspiration toxicity

Components:

Diisobutyl Ketone:

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

11.2 Information on other hazards

Further information

Components:

Diisobutyl Ketone:

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Diisobutyl Ketone:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 30 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Harmful LL/EL/IL50 >10 <= 100 mg/l
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 37,2 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Harmful LL/EL/IL50 >10 <= 100 mg/l
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 46,9 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Harmful LL/EL/IL50 >10 <= 100 mg/l
Toxicity to microorganisms	:	IC50 (activated sludge): 255 mg/l Exposure time: 16 h Method: Other guideline method. Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available

12.2 Persistence and degradability

Components:

Diisobutyl Ketone:

Biodegradability : Biodegradation: 88 %
Exposure time: 20 d
Method: Test(s) equivalent or similar to OECD Guideline 301D
Remarks: Readily biodegradable.
Oxidises rapidly by photo-chemical reactions in air.

12.3 Bioaccumulative potential

Components:

Diisobutyl Ketone:

Bioaccumulation : Remarks: Does not have the potential to bioaccumulate significantly.

12.4 Mobility in soil

Components:

Diisobutyl Ketone:

Mobility : Remarks: Floats on water., If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.

12.5 Results of PBT and vPvB assessment

Components:

Diisobutyl Ketone:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

Components:

Diisobutyl Ketone:

Additional ecological information : Does not have ozone depletion potential.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard.
Do not, puncture, cut, or weld uncleaned drums.
Send to drum recoverer or metal reclaimer.

Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : 1157

ADR : 1157

RID : 1157

IMDG : 1157

IATA : 1157

14.2 UN proper shipping name

ADN : DIISOBUTYL KETONE

ADR : DIISOBUTYL KETONE

RID : DIISOBUTYL KETONE

IMDG : DIISOBUTYL KETONE

IATA : Diisobutyl ketone

14.3 Transport hazard class(es)

ADN : 3

ADR : 3

RID : 3

IMDG : 3

IATA : 3

14.4 Packing group

ADN

Packing group : III
Classification Code : F1
Labels : 3 (N3, F)
CDNI Inland Water Waste Agreement : NST 8963 Solvent

ADR

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

RID

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG

Packing group : III
Labels : 3

IATA

Packing group : III
Labels : 3

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or

needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

Pollution category	:	Y
Ship type	:	3
Product name	:	Diisobutyl ketone

Additional Information **:** Transport in bulk according to Annex II of Marpol and the IBC Code

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV)	:	Product is not subject to Authorisation under REACH.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5a	FLAMMABLE LIQUIDS

Water hazard class (Germany)	:	WGK 1 slightly hazardous to water Code Number: 591 Remarks: Classification according to AwSV

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Product is subject Betriebs-Sicherheits-Verordnung (BetrSichV).
Compliance with paragraph 22 of Youth Employment Law.
Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).
Product is subject to Stoerfallverordnung (12. BImSchV) based on Seveso III directive (2012/18/EU).

The components of this product are reported in the following inventories:

AIIC	:	Listed
DSL	:	Listed

IECSC	:	Listed
ENCS	:	Listed
KECI	:	Listed
TSCA	:	Listed
TCSI	:	Listed
PICCS	:	Listed
NZIoC	:	Listed

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI -

Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice : Provide adequate information, instruction and training for operators.

Other information : For Industry guidance and tools on REACH please visit the CEFIC website at http://cefic.org/Industry-support.
The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

A vertical bar (|) in the left margin indicates an amendment from the previous version.

This product is classified as R66 / EUH066 (Repeated exposure may cause skin dryness or cracking). The risk relates to the potential for repeated or prolonged dermal contact. The risk arising from contact is solely related to the physico-chemical properties of the substance. The risk can therefore be controlled by implementing risk management measures tailored to this specific hazard and included within Section 8 of the SDS. An exposure scenario is not presented.

Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	On basis of test data.
STOT SE 3	H335	Expert judgement and weight of evidence determination.

Identified Uses according to the Use Descriptor System

Uses - Worker
Title : Manufacture of substance- Industrial

Uses - Worker
Title : Use as an intermediate- Industrial

Uses - Worker
Title : Distribution of substance- Industrial

Uses - Worker
Title : Formulation & (re)packing of substances and mixtures- Industrial

Uses - Worker

Title : Uses in Coatings- Industrial

Uses - Worker
Title : Uses in Coatings- Professional

Uses - Worker
Title : Use in Cleaning Agents- Industrial

Uses - Worker
Title : Use in Cleaning Agents- Professional

Identified Uses according to the Use Descriptor System

Uses - Consumer
Title : Uses in Coatings
- Consumer

Uses - Consumer
Title : Use in Cleaning Agents
- Consumer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

DE / EN

Exposure Scenario - Worker

300000000514	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Manufacture of substance- Industrial
Use Descriptor	**Sector of Use**: SU3, SU8, SU9 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 **Environmental Release Categories**: ERC1, ERC4, ESVOC SpERC 1.1.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures.Continuous process(closed systems)PROC1	No other specific measures identified.
General exposures.Continuous process-with sample collection(closed systems)PROC2	No other specific measures identified.
Use in contained batch processesPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Process sampling(closed systems)PROC3	No other specific measures identified.

Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activi-tiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	5,75E+05
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	5,75E+05
Maximum daily site tonnage (kg/day):	1,92E+06
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1,0E-03
Release fraction to wastewater from process (initial release prior to RMM):	3,0E-03
Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process re-lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emis-sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage	87,3

treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	2,1E+06
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
During manufacturing no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000522	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use as an intermediate- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 **Environmental Release Categories**: ERC6a, ESVOC SpERC 6.1a.v1
Scope of process	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).

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes a good basic standard of occupational hygiene is implemented. Assumes use at not more than 20°C above ambient temperature (unless stated differently).	

Contributing Scenarios	**Risk Management Measures**
General exposures.Continuous process(closed systems)PROC1	No other specific measures identified.
General exposures.Continuous process-with sample collection(closed systems)PROC2	No other specific measures identified.
Use in contained batch processesPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Process sampling(closed systems)PROC3	No other specific measures identified.

Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Bulk product storage(closed systems)PROC1PROC2	No other specific measures identified.
Laboratory activi-tiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	500
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	500
Maximum daily site tonnage (kg/day):	1,7E+03
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	2,0E-04
Release fraction to wastewater from process (initial release prior to RMM):	3,0E-03
Release fraction to soil from process (initial release prior to RMM):	1,0E-03
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process re-lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emis-sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage	87,3

treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	5,8E+04
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000515	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Distribution of substance- Industrial
Use Descriptor	**Sector of Use**: SU3, SU8, SU9 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15 **Environmental Release Categories**: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7, ESVOC SpERC 1.1b.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)Continuous processno samplingPROC1	No other specific measures identified.
General exposures (closed systems)Continuous processwith sample collectionPROC2	No other specific measures identified.
General exposures.Use in contained batch processeswith sample collectionPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Process sampling(closed systems)PROC3	No other specific measures identified.
Bulk transfersDedicated	No other specific measures identified.

facility(closed systems)PROC8b	
Bulk transfersDedicated facility(open systems)PROC8b	No other specific measures identified.
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.
Drum and small package fillingDedicated facilityPROC9	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	9,0E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	9,0E+03
Maximum daily site tonnage (kg/day):	3,0E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1,0E-04
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-05
Release fraction to soil from process (initial release prior to RMM):	1,0E-05
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary	0

wastewater treatment required.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	5,3E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet

(http://cefic.org).

Exposure Scenario - Worker

300000000516	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Formulation & (re)packing of substances and mixtures- Industrial
Use Descriptor	**Sector of Use**: SU3, SU10 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15 **Environmental Release Categories**: ERC2, ESVOC SpERC 2.2.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)Continuous processno samplingPROC1	No other specific measures identified.
General exposures (closed systems)Continuous processwith sample collectionPROC2	No other specific measures identified.
General exposures.Use in contained batch processeswith sample collectionPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.
Batch processes at elevat-	No other specific measures identified.

ed temperatures(closed systems)PROC3	
Process sampling(closed systems)PROC3	No other specific measures identified.
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Mixing operations (open systems)PROC5	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Transfer from/pouring from containersManualPROC8a	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.
Production or preparation or articles by tabletting, compression, extrusion or pelletisationPROC14	No other specific measures identified.
Drum and small package fillingDedicated facilityPROC9	No other specific measures identified.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	800
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	800
Maximum daily site tonnage (kg/day):	2,7E+03
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1,0E-02
Release fraction to wastewater from process (initial release prior to RMM):	2,0E-03
Release fraction to soil from process (initial release prior to RMM):	1,0E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emis-	

sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,1E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000517	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13, PROC 14, PROC 15 **Environmental Release Categories**: ERC4, ESVOC SpERC 4.3a.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)PROC1	No other specific measures identified.
General exposures (closed systems)with sample collectionPROC2	No other specific measures identified.
Film formation - force drying, stoving and other technologies.Use in contained systemsPROC2	No other specific measures identified.
Mixing operations (closed systems)General exposures (closed systems)PROC3	No other specific measures identified.

Film formation - air dry-ingPROC4	No other specific measures identified.
Preparation of material for applicationMixing opera-tions (open sys-tems)PROC5	No other specific measures identified.
Spraying (automat-ic/robotic)PROC7	Carry out in a vented booth or extracted enclosure.
SprayingManualPROC7	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours Wear suitable gloves tested to EN374.
Material transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Material transfersDedicated facilityPROC8b	No other specific measures identified.
Roller, spreader, flow appli-cationPROC10	No other specific measures identified.
Dipping, immersion and pouringPROC13	No other specific measures identified.
Production or preparation or articles by tabletting, compression, extrusion or pelletisationPROC14	No other specific measures identified.
Laboratory activi-tiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	200
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	200
Maximum daily site tonnage (kg/day):	667
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,8E-02
Release fraction to wastewater from process (initial release prior to RMM):	7,0E-03
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process re-	

lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	6,2E+04
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users	

should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000518	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- Professional
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.3b.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)PROC1	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.PROC2	No other specific measures identified.
General exposures (closed systems)Use in contained systemsPROC2	No other specific measures identified.
Preparation of material for applicationPROC3	No other specific measures identified.
Film formation - air dryingPROC4	No other specific measures identified.
Material transfersDrum/batch transfersNon-dedicated facili-	No other specific measures identified.

tyPROC8a	
Material transfersDrum/batch transfersDedicated facili-tyPROC8b	No other specific measures identified.
Roller, spreader, flow applica-tionPROC10	No other specific measures identified.
SprayingManualIndoorPROC11	Carry out in a vented booth or extracted enclosure.
SprayingManualOutdoorPROC11	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.
Dipping, immersion and pour-ingPROC13	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Hand application - fingerpaints, pastels, adhesivesPROC19	Wear suitable gloves tested to EN374.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	200
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	0,1
Maximum daily site tonnage (kg/day):	0,33
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process re-lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emis-sions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	418
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000519	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in Cleaning Agents- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13 **Environmental Release Categories**: ERC4, ESVOC SpERC 4.4a.v1
Scope of process	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)PROC1	No other specific measures identified.
Bulk transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Use in contained systemsAutomated process with (semi) closed systems.PROC2	No other specific measures identified.
Use in contained systemsAutomated process with (semi) closed systems.Drum/batch transfersPROC3	No other specific measures identified.
Application of cleaning	No other specific measures identified.

products in closed systemsPROC2	
Filling/ preparation of equipment from drums or containers.Dedicated facilityPROC8b	No other specific measures identified.
Use in contained batch processesTreatment by heatingPROC4	No other specific measures identified.
Degreasing small objects in cleaning stationPROC13	No other specific measures identified.
Cleaning with low-pressure washersPROC10	No other specific measures identified.
Cleaning with high pressure washersPROC7	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours Wear suitable gloves tested to EN374.
CleaningSurfacesno sprayingManualPROC10	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	2,000
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2,000
Maximum daily site tonnage (kg/day):	1,0E+05
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	20
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	3,0E-01
Release fraction to wastewater from process (initial release prior to RMM):	3,0E-05
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary	

wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	6.281
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Worker

300000000520	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in Cleaning Agents- Professional
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.4b.v1
Scope of process	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).

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	**Risk Management Measures**
General exposures (closed systems)PROC1	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Dedicated facilityPROC8b	No other specific measures identified.
Use in contained systemsAutomated process with (semi) closed systems.PROC2	No other specific measures identified.
Use in contained systemsAutomated process with (semi) closed systems.Drum/batch transfersPROC3	No other specific measures identified.
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)PROC4	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.Non-dedicated facili-	Ensure operation is undertaken outdoors.

tyOutdoorPROC8a	
CleaningSurfacesManualDipping, immersion and pouringPROC13	No other specific measures identified.
Cleaning with low-pressure washersPROC10	No other specific measures identified.
Cleaning with high pressure washersIndoorPROC11	Limit the substance content in the product to 25 %. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Cleaning with high pressure washersOutdoorPROC11	Limit the substance content in the product to 25 %. Ensure operation is undertaken outdoors. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
CleaningSurfacesManualSprayingPROC10	No other specific measures identified.
Ad hoc manual application via trigger sprays, dipping, etc.Rolling, BrushingPROC10	No other specific measures identified.
Cleaning of medical devicesPROC4	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	2,000
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	1
Maximum daily site tonnage (kg/day):	3,3
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	2,0E-02
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-06
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by marine water.	
Prevent discharge of undissolved substance to or recover from onsite	

wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	4.506
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all

sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Consumer

300000001055	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings - Consumer
Use Descriptor	**Sector of Use**: SU21 **Product Categories**: PC1, PC4, PC8 (excipient only), PC9a, PC9b, PC15, PC18, PC23, PC24, PC31, PC34 **Environmental Release Categories**: ERC8a, ERC8d
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Consumer Exposure**	
Product Characteristics		
Physical form of product	Liquid, vapour pressure > 10 Pa	
Concentration of the Substance in Mixture/Article	Unless stated otherwise.	
	Covers concentration up to (%): 50 %	
Amounts Used		
Unless stated otherwise.		
for each use event, covers amount up to (g):		13.800
covers skin contact area (cm2):		858
Frequency and Duration of Use		
Unless stated otherwise.		
covers use up to (times/day of use):		1
Covers use up to (hours/event):		4
Other Operational Conditions affecting Exposure		
Unless stated otherwise. Covers use at ambient temperatures. Covers use in room size of 20m3 Covers use under typical household ventilation.		

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Adhesives, sealants Glues, hobby use.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 35,73 cm2
	For each use event, covers amount up to 9 g
	Covers use in room size of 20 m3

	Covers exposure up to 4 hours/event
Adhesives, sealants Glues DIY-use (carpet glue, tile glue, wood parquet glue).	Covers concentrations up to 100 %
	covers use up to 1 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 110 cm2
	For each use event, covers amount up to 6.390 g
	Covers use in room size of 20 m3
	Covers exposure up to 6 hours/event
Adhesives, sealants Glue from spray.	Covers concentrations up to 100 %
	covers use up to 6 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 35,73 cm2
	For each use event, covers amount up to 85,05 g
	Covers use in room size of 20 m3
	Covers exposure up to 4 hours/event
Adhesives, sealants Sealants.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 35,73 cm2
	For each use event, covers amount up to 75 g
	Covers use in room size of 20 m3
	Covers exposure up to 1 hours/event
Anti-Freeze and de-icing products Washing car window.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 0,5 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers exposure up to 34 m3
	Covers exposure up to 0,02 hours/event
Anti-Freeze and de-icing products Pouring into radiator.	Covers concentrations up to 38 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428 cm2
	For each use event, covers amount up to 2.000 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,17 hours/event
Anti-Freeze and de-icing products Lock de-icer.	Covers concentrations up to 75 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use

	covers skin contact area up to (cm2): 214,4 cm2
	For each use event, covers amount up to 4 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,25 hours/event
Biocidal products (e.g. Disinfectants, pest control) (excipient only). Laundry and dish washing products.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 15 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,5 hours/event
Biocidal products (e.g. Disinfectants, pest control) (excipient only). Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).	Covers concentrations up to 50 %
	covers use up to 128 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 27 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,33 hours/event
Biocidal products (e.g. Disinfectants, pest control) (excipient only). Cleaners, trigger sprays (all purpose cleaners,sanitary products, glass cleaners).	Covers concentrations up to 100 %
	covers use up to 128 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428 cm2
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,17 hours/event
Coatings and paints, thinners, paint removers Waterborne latex wall paint.	Covers concentrations up to 1,5 %
	covers use up to 4 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 2.760 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3

	Covers exposure up to 2,20 hours/event
Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentrations up to 27,5 %
	covers use up to 6 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 744 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 2,20 hours/event
Coatings and paints, thinners, paint removers Aerosol spray can.	Covers concentrations up to 50 %
	covers use up to 2 day/year
	covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,33 hours/event
Coatings and paints, thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 50 %
	covers use up to 3 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,50 cm2
	For each use event, covers amount up to 491 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 2,00 hours/event
Fillers, Putties Fillers and putty.	Covers concentrations up to 2 %
	covers use up to 12 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 35,73 cm2
	For each use event, covers amount up to 85 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 4,00 hours/event
Fillers, Putties Plasters and floor equalizers.	Covers concentrations up to 2 %
	covers use up to 12 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,50 cm2
	For each use event, covers amount up to 13.800 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 2,00 hours/event

Non-metal-surface treatment products Waterborne latex wall paint.	Covers concentrations up to 100 %
	covers use up to 4 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 2.760 g
	Covers use in room size of 20 m3
	Covers exposure up to 2,2 hours/event
Non-metal-surface treatment products Solvent rich, high solid, water borne paint.	Covers concentrations up to 100 %
	covers use up to 6 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 744 g
	Covers use in room size of 20 m3
	Covers exposure up to 2,2 hours/event
Non-metal-surface treatment products Aerosol spray can.	Covers concentrations up to 100 %
	covers use up to 2 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,33 hours/event
Non-metal-surface treatment products Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 100 %
	covers use up to 3 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 491 g
	Covers use in room size of 20 m3
	Covers exposure up to 2 hours/event
Ink and toners	Covers concentrations up to 10 %
	covers use up to 365 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 71,40 cm2
	For each use event, covers amount up to 40 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 2,20 hours/event
Leather tanning, dye, finishing, impregnation and care products Polishes, wax / cream (floor, furniture,	Covers concentrations up to 50 %

shoes).	
	covers use up to 29 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 430,00 cm2
	For each use event, covers amount up to 56 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 1,23 hours/event
Leather tanning, dye, finishing, impregnation and care products Polishes, spray (furniture, shoes).	Covers concentrations up to 50 %
	covers use up to 8 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 430,00 cm2
	For each use event, covers amount up to 56 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 0,33 hours/event
Lubricants, greases, release products Liquids.	Covers concentrations up to 100 %
	covers use up to 4 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 468 cm2
	For each use event, covers amount up to 2.200 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,17 hours/event
Lubricants, greases, release products Pastes.	Covers concentrations up to 100 %
	covers use up to 10 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 468 cm2
	For each use event, covers amount up to 34 g
	Covers use in room size of 20 m3
Lubricants, greases, release products Sprays.	Covers concentrations up to 100 %
	covers use up to 6 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 73 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,17 hours/event
Polishes and wax blends Polishes, wax / cream (floor, furniture, shoes).	Covers concentrations up to 100 %
	covers use up to 29 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 430 cm2
	For each use event, covers amount up to 142 g

	Covers use in room size of 20 m3
	Covers exposure up to 1,23 hours/event
Polishes and wax blends Polishes, spray (furniture, shoes).	Covers concentrations up to 100 %
	covers use up to 8 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 430 cm2
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m3
	For each use event, assumes swallowed amount of 0,33 hours/event
Textile dyes, finishing and impregnating products; including bleaches and other processing aids	Covers concentrations up to 90 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 115 g
	Covers use in room size of 20 m3
	Covers exposure up to 1 hours/event

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3.000
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	1,5
Maximum daily site tonnage (kg/day):	4,1
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	5,0E-03
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	3.113
Assumed domestic sewage treatment plant flow (m3/d)	2.000

Conditions and Measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or regional regulations.
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or regional regulations.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org).

Exposure Scenario - Consumer

300000001057	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in Cleaning Agents - Consumer
Use Descriptor	**Sector of Use**: SU21 **Product Categories**: PC3, PC4, PC8 (excipient only), PC9a, PC24, PC35, PC38 **Environmental Release Categories**: ERC8a, ERC8d
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

Section 2.1	**Control of Consumer Exposure**	
Product Characteristics		
Physical form of product	Liquid, vapour pressure > 10 Pa	
Concentration of the Substance in Mixture/Article	Unless stated otherwise.	
	Covers concentration up to (%): 15 %	
Amounts Used		
Unless stated otherwise.		
for each use event, covers amount up to (g):		35
covers skin contact area (cm2):		857,5
Frequency and Duration of Use		
Unless stated otherwise.		
covers use up to (times/day of use):		1
Covers use up to (hours/event):		0,5
Other Operational Conditions affecting Exposure		
Unless stated otherwise. Covers use at ambient temperatures. Covers use in room size of 20m3 Covers use under typical household ventilation.		

Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Air care products Air care, instant action (aerosol sprays).	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 4 times/day of use
	For each use event, covers amount up to 0,1 g
	Covers use in room size of 20 m3

	Covers exposure up to 0,25 hours/event
Air care products Air care, continuous action (solid and liquid).	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 35,70 cm2
	For each use event, covers amount up to 0,48 g
	Covers use in room size of 20 m3
	Covers exposure up to 8 hours/event
Anti-Freeze and de-icing products Washing car window.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 0,5 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,02 hours/event
Anti-Freeze and de-icing products Pouring into radiator.	Covers concentrations up to 30 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428 cm2
	For each use event, covers amount up to 2.000 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,17 hours/event
Anti-Freeze and de-icing products Lock de-icer.	Covers concentrations up to 70 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 214,4 cm2
	For each use event, covers amount up to 4 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,25 hours/event
Biocidal products (e.g. Disinfectants, pest control) (excipient only). Laundry and dish washing products.	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 15 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,5 hours/event

Biocidal products (e.g. Disinfectants, pest control) (excipient only). Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).	Covers concentrations up to 18 %
	covers use up to 128 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 27 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,33 hours/event
Biocidal products (e.g. Disinfectants, pest control) (excipient only). Cleaners, trigger sprays (all purpose cleaners,sanitary products, glass cleaners).	Covers concentrations up to 38 %
	covers use up to 128 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428 cm2
	For each use event, covers amount up to 35 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,17 hours/event
Coatings and paints, thinners, paint removers Waterborne latex wall paint.	Covers concentrations up to 100 %
	covers use up to 4 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 2.760 g
	Covers use in room size of 20 m3
	Covers exposure up to 2,2 hours/event
Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentrations up to 100 %
	covers use up to 6 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 744 g
	Covers use in room size of 20 m3
	Covers exposure up to 2,2 hours/event
Coatings and paints, thinners, paint removers Aerosol spray can.	Covers concentrations up to 100 %
	covers use up to 2 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 215 g

	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,33 hours/event
Coatings and paints, thinners, paint removers Removers (paint-, glue-, wall paper-, sealant-remover).	Covers concentrations up to 100 %
	covers use up to 3 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 491 g
	Covers use in room size of 20 m3
	Covers exposure up to 2 hours/event
Lubricants, greases, release products Liquids.	Covers concentrations up to 36 %
	covers use up to 4 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 468 cm2
	For each use event, covers amount up to 2.200 g
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0,17 hours/event
Lubricants, greases, release products Pastes.	Covers concentrations up to 34 %
	covers use up to 10 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 468 cm2
	For each use event, covers amount up to 34 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,5 hours/event
Lubricants, greases, release products Sprays.	Covers concentrations up to 37 %
	covers use up to 6 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428,75 cm2
	For each use event, covers amount up to 73 g
	Covers use in room size of 20 m3
	Covers exposure up to 0,17 hours/event
Washing and cleaning products (including solvent based products) Laundry and dish washing products.	Covers concentrations up to 5 %
	covers use up to 365 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 15 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 0,50 hours/event

Washing and cleaning products (including solvent based products) Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).	Covers concentrations up to 5 %
	covers skin contact area up to (cm2): 428,00 cm2
	covers use up to 128 day/year
	covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 857,5 cm2
	For each use event, covers amount up to 27 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 0,33 hours/event
Washing and cleaning products (including solvent based products) Cleaners, trigger sprays (all purpose cleaners,sanitary products, glass cleaners).	Covers concentrations up to 15 %
	covers use up to 128 day/year
	covers use up to 1 times/day of use
	For each use event, covers amount up to 35 g
	Covers use under typical household ventilation.
	Covers use in room size of 20 m3
	Covers exposure up to 0,17 hours/event
Welding and soldering products (with flux coatings or flux cores.), flux products	Covers concentrations up to 100 %
	covers use up to 365 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 12 g
	Covers use in room size of 20 m3
	Covers exposure up to 1 hours/event

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	2.000
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	1
Maximum daily site tonnage (kg/day):	3,3
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10

Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,5E-01
Release fraction to wastewater from process (initial release prior to RMM):	2,5E-02
Release fraction to soil from process (initial release prior to RMM):	2,5E-02
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1.531
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment
Used EUSES model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 -Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet

(http://cefic.org).